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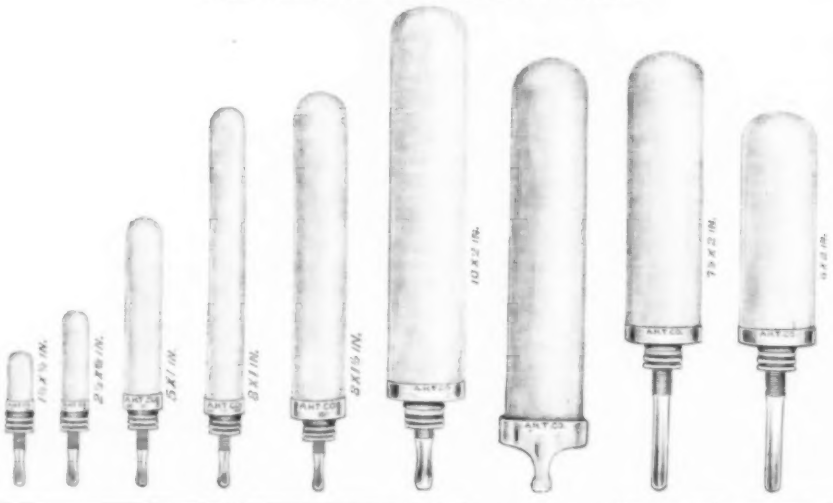

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HISTORY OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

PETER H. BRYCE, M.D.,
Department of the Interior, Ottawa, Ont.

AT THE meeting of the International Medical Congress held during the Centennial Exhibition in Philadelphia in 1876, Dr. Henry I. Bowditch of Boston delivered a discourse which gives a very complete history of the progress of medicine during the previous century, showing how in the period from 1776 to 1832 *Systems of Medicine* with drugs as their fetish prevailed; how from 1832 to 1869, when the first state board of health was organized, medicine developed through the work of the great clinical teachers of the modern school of medical observation and investigation, of pathological and experimental work, and especially through the recognition of the *vis medicatrix naturæ*. From 1869 to the present has been witnessed the evolution of state medicine, or what we prefer to designate as preventive medicine. To have been a teacher of science during exactly the same forty years since 1876, and, for all but six years of this period, to have been an official exponent of preventive medicine, surely entitles me to rehearse its story and illustrate some of its victories and, did time permit, to refer to some of its mistakes. During these years Bowditch tells us that national sanitary conventions had been held in Philadelphia, Baltimore, New York, and Boston in 1857, 1858, 1859, 1860, but ceased with the war. The American Public Health Association was organized, our records tell us, on April 18, 1872, at Atlantic City when Dr. Stephen Smith, Dr. E. Harris, C. F. Chandler and Doctor Bacon of New York, Dr. J. Morris, Baltimore, Dr. Henry Hartshorne of Philadelphia, Dr. Christopher Cox of Washington, Dr. John Rauch of Chicago, Dr. William Clendenin, Cincinnati, and Dr. John M. Woodworth of the Marine Hospital were present in *re nata*. It is quite true that up to 1872 many health enactments could be found on the statute books of different states especially such as dealt with quarantine epidemics and abatement of nuisances; but nothing better illustrates the difference between then and now than the polemics engaged in between Pasteur and Pidoux, Trecul and others in France and between Tyndall and Bastian in England on the germ theory as opposed to that of spontaneous generation. Doctor Bowditch in his splendid discourse points out with much elaboration in an appendix the great advances in his opinion already made in preventive medicine up to 1876, since as early as 1862 he had established to his own satisfaction the "Laws of Soil

Moisture and Land Drainage" and their "Influence in Consumption." But perhaps the most interesting part of Bowditch's paper is an analysis of the answers received to twenty questions asked in a circular sent out by him to every state and territory. The replies to Question 3 show that by 1876 there were in existence only twelve state boards of health, while the ordinary grants for public health work in all these states did not exceed $20,000. The answers to another question were that in but ten states in thirty-eight were the authorities willing to expend money to adequately support their board of health. We get perhaps the best insight as to the reason for this attitude in Bowditch's account of the progress of public health in Massachusetts. He tells us that "The Report of the Sanitary Condition of Massachusetts published by order of the Legislature in 1850, was written by a layman, Lemuel Shattuck," and further says, "I remember Mr. Shattuck well. Calm in his perfect confidence in the future of preventive medicine to check disease, he walked almost alone the streets of his native city; not only unsustained by the profession, but considered by most of them as an offense for his earnest defence of what seemed to the majority of us physicians out of the layman's sphere and withal of trifling moment compared with our usual routine of so called practice. The public, ignorant of hygiene, treated him no better; the report fell stillborn from the state printer's hands and its recommendations were ignored."

All this, as Bowditch recalls, is but an echo of what Edwin Chadwick, a lawyer, did and experienced in his public health propaganda in England; but it is interesting to recall, nevertheless, that it was in 1875 that the consolidated Public Health Act of England, largely the outcome of his efforts, was passed, containing the best results of experience in health legislation up to that time. In Canada, public health legislation was at one time perhaps more advanced than in the United States, since after the cholera epidemic of 1832 a Provincial Act for appointing Local Boards of Health was passed in 1833 and amended in 1849 so as to provide for a Central Board of Health to continue during the pleasure of the legislature. This temporary legislation was made of a permanent character when in 1882 an act establishing the Provincial Board of Ontario was passed and myself its first secretary appointed.

Such then was the general situation when in the year 1882 Koch announced the discovery of the baccillus of tuberculosis, while Pasteur by a crucial experiment demonstrated to a wondering world the immunizing power of his anthrax vaccine for sheep and cattle. The realization of what it meant to the great public health movement to have the germ theory of disease established on the permanent basis from which we today start in all our preventive propositions is seen in the rapid crystallization of the best methods hitherto tested for suppressing the various contagious diseases.

In the 11th volume (1885) of the Transactions of the Association is printed a complete alphabetical list of the titles of all papers, with their authors, read during the previous ten years, which included 335 papers and 222 authors. Both lists are most interesting and nothing has afforded me more gratification in looking through the lists of names than to recall the faces, individual traits and striking mental qualities of various persons in the list, whose broad views on public health even in that pre-scientific period were quite remarkable; though the titles of other papers occasionally indicate the reflection of medical theories belonging to the empirical age of our science. Such are illustrated by papers like that of Brewer, on "Rotting Wood" and that by Plunkett on "Cotton as a

Fomites"; or that by Abigail Miles on "The Sunstroke Epidemic of Cincinnati" during the summer of 1881. It is to be hoped that Doctor Landis has taken measures to prevent a recrudescence of the outbreak during the week of our residence in his city. Perhaps nothing, however, speaks more loudly to us of the transitory nature of the human element in the world's work, no matter how important, glorious and enduring, than that in the list of 222 names of those readers of papers I should recognize only five survivors. Need I do more than recall such names as those of Doctor Smart, Doctor Sternberg, and Doctor Billings of the Army, Doctor Gihon of the Navy, Messrs. Morris and Waring, C. E., of New York, Doctors Hamilton and Wyman of Washington or Doctor Rauch of Chicago, Doctor Lee of Philadelphia, Doctor Hewitt of Minnesota, Doctor Cochrane of Alabama, Doctor Holt of Louisiana and Doctor Wood of North Carolina to visualize for you men, most of whom had seen war on the tented field and were ever as ready and willing to defend whatever they believed to be sanitary truth and in the interests of public health as they had been before to fight for freedom, liberty and what they believed to be right? With you I would lay upon their tombs wreaths of immortelles in memory of illustrious deeds done for God, their country and humanity!

Among the earliest and most important indications of the influence of organized public health opinion may be cited the pressure of the Association upon the Congress of the United States to establish a Department of Public Health. This was expressed in a resolution adopted at the first annual meeting and referred to a committee for action. It resulted in the formation in 1879 of a national board of health which continued for the five years indicated in the terms of the Act appointing it. It is instructive to notice how, in the absence of any generally accepted scientific theory such as the germ theory of disease as a beacon light to guide all workers, the first board of health established in England in 1849 during the cholera outbreak should likewise have been appointed only for a limited period and terminated its existence at the end of seven years and that similarly such should have been the fate of the first national board of health of the United States. Fortunately, however, public health during this period in the United States was not without other witnesses and some of the functions of the national board at once passed over to the Marine Hospital Service, the oldest organized medical service in America.

The most notable event in the history of the Association following after 1873 was the amendment to the Constitution adopted at the Detroit meeting (1884) admitting Canadians to membership, thus thereby unofficially insuring coöperation with the authorities of that country engaged in public health work. This seemed especially urgent in view of the then existing cholera in cities on the Mediterranean. The year 1885 saw the greatest epidemic of smallpox of the century visit Montreal and extend to the neighboring provinces and states, which became the occasion for Dr. John Rauch of Illinois, a member of the Conference of State Boards, being invited to inspect Canadian quarantine defences as well as those of the American seaboard. The confidence in Canadian methods thereby begotten supported by a demand, based upon five months' results of organized train inspection in Ontario, by the writer at the Washington meeting in December, 1885, resulted in the removal of Canadian border quarantine inspection instituted by the Marine Hospital Service at the request of neighboring states. I find in the Transactions of the 1886 meeting in Toronto a discussion, growing out of the Report of a Committee

on Interstate Notification of Infectious Diseases, in which the attitude of armed neutrality then existing is set forth by Doctor Holt, President of the State Board of Louisiana, in one of the most remarkable addresses ever made in the Association. I recommend its perusal by our younger members. Holt said:

"Yellow fever breaks out; interstate notification—and that settles the question. But in practice. . . . This question, so far from being one which can be disposed of in a few words, involves, first, the local outbreak of the pestilence; it involves all that may be said in relation to that first case or suspected case, and all that is locally involved in the disturbance of the entire social and industrial equilibrium; it involves the extension of the alarm, the commercial disturbance, and the social disturbance from your own community to neighboring communities and neighboring states; it involves the full play of human passion, and the exhibition at the same moment of the passion of terror in its most abject form of avarice in the most hideous aspect in which it can be presented in the human form, short of the cannibals of the islands of the South Sea. You have there exhibited the demoniacal nature of man, who, while it is not the fashion to lay his hands on and eat his fellow-man, yet will go just as far towards devouring him, as utterly regardless of what we call humanity as the law and the times will possibly allow him to be. And when I say that you will confront this being there, and have it confronting you, not in any timid way, but ready to take you by the throat and throttle you,—I mean that you will have there the keepers of saloons, the keepers of barrooms, the keepers of hotels and sea-shore hostelries—those men who are in your banking houses, the heads of your railroad department, men who exhibit that spirit that rather than have their personal affairs or their commercial affairs interfered with by you, or by any disturbance of which you have been apparently the head and front, they would crush you. In other words, they would not stand back a moment to prevent the pestilence from coming in right between their fingers, and ravaging the country at the expense of tens of thousands of lives, if by standing back they could only save themselves the units of dollars."

During the several immediately succeeding years no great epidemics threatened the Continent; but the discoveries appearing almost yearly, as of Koch's B. tuberculosis in 1882, of Pasteur's vaccines against rabies in 1884, and his first experiment on a human being, Joseph Meister, beginning on July 6, 1885, with a series of attenuated spinal cords and continued to July 16 when virulent material only one day old was inoculated—an act more daring and heroic than even Edward Jenner's vaccination of the boy James Phipps, in 1796; of the discovery in 1887 of B. typhosus, of Loeffler's discovery of the B. diphtheriæ in 1896 and of its antitoxin by Behring in 1897, and of the hematozoon malariæ by Laveran about the same time, were so rapidly crystallizing medical thought along lines of preventive medicine that administrative methods previously impossible of general adoption were now becoming a matter of routine practice by medical officers of health.

The next great event in the ever widening importance of the Association occurred in 1889, which witnessed the arrival of a delegation of three members of the Federal Board of Health of Mexico at the Charleston meeting, who asked admission into the Health Concert of Nations. The distinguished social qualities of these delegates and their high scientific acquirements at once commended them to the growing œcumenical Association of Science, and by resolution the Association extended its membership to these gentlemen, who the

next year after came to Kansas City with a delegation from each State of Mexico and extended the cordial invitation of President Diaz and his government to hold the 1892 meeting in Mexico City. Those of us who attended there will never forget Doctor Formento in his eloquent Presidential Address when he neatly said, "This intelligent transfer of the scene of our debates, far beyond our boundaries, to the capital of our friends and neighbors, is the first step to the scientific unification of the whole American Continent. This is the first real International Health Congress on this side of the Altantic." It was at this meeting that our membership reached its highest until 1914.

But public health was growing fast. In 1891 Koch announced the discovery of a tuberculosis antitoxin and caused a veritable pilgrimage to Berlin; while Tizzani announced the discovery of the serum of B. tetanus against lockjaw, which serum is performing wonders in protecting the soldiers in the trenches today. The year 1892 also witnessed the first international sanitary commission in America, when representatives of three state boards and the Secretary of the Ontario Board of Canada were delegated to examine the Atlantic's quarantine coast defences from Halifax to Charleston in anticipation of a cholera visitation from Hamburg, whence cases on ships had already arrived in New York harbor. As Secretary of that Commission the writer recalls how local prejudices had to be met; while the publication of defects calling loudly for remedy, when given local prominence, made the position of members of the Commission at times anything but comfortable in carrying out their appointed task. The Commission's Report, however, showed how science knows no international boundaries and was the direct means of having an act passed giving the federal government jurisdiction in every part of the United States in matters of quarantine and was the occasion of the first joint Conference of Federal and Provincial Health Officers in Canada. A Report of a Committee on National Health Legislation in this same year, perhaps stimulated by the example of Mexico, reported strongly in favor of a national public health service in the United States to do the things which we now find being done so well at Washington by the Public Health Service.

An examination of subjects dealt with in the Transactions from year to year indicates no very great variation in the outlook on public health; but in the Transactions for 1894 when the second Canadian meeting of the Association was held in Montreal we find what is called "The Proceedings of the Convention." Probably none here would know what this heading means; but its chairman told how, at the meeting in Montreal, the Special Committee on Water Supply had held several meetings of bacteriologists and chemists to devise schemes for common laboratory work in examining water. Later it was decided that a special committee meeting would be required to discuss such methods and this was held in New York, June 21, 1895. Out of this meeting grew the first Section of the Association, that of Bacteriology and Chemistry. The work of standardizing laboratory methods has grown until text-books on working methods are issued by the Association and are today accepted throughout the Continent as standards. Prof. W. H. Welch spoke of that meeting as the first convention of bacteriologists on this continent; while each annual report since then has illustrated the influence, which the growing number of laboratories attached to state and municipal boards of health have had in giving exactness and definiteness to their routine work. The examination of tuberculosis sputum begun by New York Board in 1894 and the introduction in the same year of Roux's

antitoxin of diphtheria as a routine treatment, resulting in the laboratory examination of swabs, marked the rapid advance in clinical treatment; while the daily examinations of water and milk supplies were giving a scientific quality of exactness to public health services which added greatly to their value and influence in both the community and state.

That, however, the Association was realizing both its duties and abilities may be seen from the range of subjects set apart for study and investigation. Thus at the Denver meeting in 1895 eighteen special committees were appointed, ranging from that on pollution of water supplies to car sanitation, to the centennial of vaccination and the international committee on prevention of spread of yellow fever. A paper presented at the Denver meeting in 1895 on "Some Degenerative Influences of Modern Civilization" by Doctor Denison is of interest as marking the tendency of public health workers to investigate sociological subjects, now become so important a part of public health work. The problem of the pollution of international streams was first discussed by Dr. P. H. Bryce in a paper on "Rivers Conservancy Boards" at the same meeting.

Probably the most notable event of the next two years is that reported in the Transactions of the year 1900 when the writer was honored with the presidency and presented a "Résumé of One Hundred Years of Public Health." This event was a paper on "A Preliminary Note on the Etiology of Yellow Fever" by Dr. Walter Reed, associated with three other medical officers, detailed by Surgeon General Sternberg to study yellow fever in Cuba. As an illustration of the application of experimental methods the simple story told of how Doctor Carroll and Doctor Lazear submitted themselves to the bite of the *Culex fasciatus*, suspected of being the carrier of yellow fever, of how Lazear, failing to be inoculated by the first mosquito, a little later allowed another to gorge itself with his blood on September 13, 1900, and of how on the 18th he sickened and on the 30th died of fatal yellow fever. The Report concludes with the simple sentence "The mosquito serves as the intermediate host for the parasite of yellow fever." The birth of the twentieth century was marked by another equally great discovery when M. Simond of the Pasteur Institute announced that his experimental work pointed to the fact of the transmission of plague through fleas living on rats infected with the disease.

In 1903 Cuba was admitted as an associate in the Public Health Association, thus rounding out the American Public Health Association as representing the whole North American Continent. In 1905 the Association held its first meeting at Havana in Cuba under the presidency of Dr. Carlos Finlay, the first to affirm the mode of transmission of yellow fever by means of mosquitoes. Doctor Finlay in his opening address paid eloquent tribute to Doctors Lazear and Reed as martyrs to science and to Cuba, and took pride in reporting that in the district of Havana during that year not a single case of yellow fever had originated. An eloquent tribute to Doctor Finlay was then paid by Dr. Benjamin Lee, a former president of the Association, who said, "The names of Reed and the heroic Carroll, of Agrimonte and Lazear the martyr; of Gorgas, Ross and Guiteras must all be blazoned high on the scroll, which shall memorize this triumphant episode in the history of state medicine; but does not the place of most conspicuous honor justly belong to him, to whom this inspiration was first vouchsafed and who so patiently and courageously maintained his thesis through long years of discouragement in the face of obliquy, derision and scorn?" It was in the next year that the first report of the committee on "The

Relations of Protozoa to Disease" was presented by C. H. Stiles, Ph. D., of the Marine Hospital Service.

The effects of such discoveries as have been noted upon the public mind were such as to make the future development of public health through governmental recognition and support comparatively easy. The nations had grown populous and rich, cities had grown enormously and their demands became proportionately insistent. With the absorption constantly of rural population and the multiplication everywhere of industries through utilizing the cheap labor of immigrants, great corporations with enormous aggregation of capital had grown up and often dominated city and state policies. The pollution of streams seemed to be accepted as inevitable with a fatalistic philosophy, which excused the yearly slaughter of many persons by means of polluted water supplies. To those in charge of public affairs it seemed splendid to stamp out yellow fever and cholera in the interests of trade with foreign ports; but why should cities busy with making money have their serenity disturbed with the problem of the lives of those citizens who were unfortunate enough to suffer from local polluted water? However, it has come about that the civic conscience in many places has begun to examine itself scientifically, and of recent years large plans, as that of Louisville, have been worked out whereby science was systematically set to work to determine through a comprehensive and sustained series of experiments on drinking waters *in situ*, the natural laws bearing upon the questions of river pollution and water purification. An epoch-making report was issued in 1904 by G. W. Fuller, C. E., in charge of the Louisville investigation. In order that the engineering members of the Association might have greater opportunities to develop this special feature of Public Health work, the Section on Sanitary Engineering was formed in 1911. A syllabus of work comprehended in the field of engineering is found in the April number, 1912, of the JOURNAL and admirably illustrates the broad views which the Section takes of the scope of its duties as they relate to Public Health.

A similar direction being given to scientific thought is seen in the presidential address by Professor Westbrook of Minnesota laboratories, read at the Boston meeting in 1906. He said, "A glance at the programme for the meeting will give you some idea of the complicated mechanism and care of the health of the public and their necessity should be recognized and demanded by the public." The widening of the scientific outlook continued during the next five years and was marked in 1909 by the formation of the Statistical Section. The study of such problems as a common basis of nomenclature for diseases, the coördination of statistical methods in the different states and countries, and the utilizing for study of the statistics of school diseases, of occupations and of industries has established guides to every health official in his practical work. As in the larger cities statistical branches were being utilized for sociological investigations, it was very natural that the social workers, in increasing numbers becoming members of our Association, should have demanded the opportunity for discussion of their special problems in the Association. Hence it came about that the Section of Municipal Health Officers and the Sociological Section as well were formed at the Milwaukee meeting in 1910. As showing how sociological problems were coming into prominence a whole session at the Milwaukee meeting was devoted to the report of a "Special Committee on Prevention of Venereal Diseases" with other papers bearing upon special features of the subject. At the same meeting papers on "The American Civic Association in Relation to

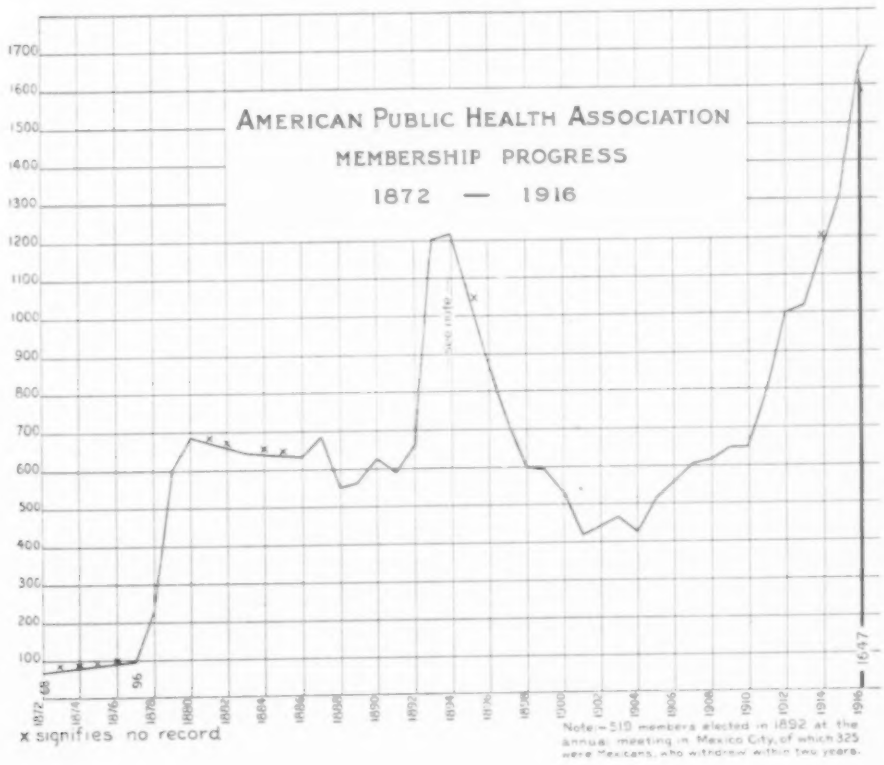
Public Health," on "Child Labor and Public Health," on "The National Housing Association and Its Relation to Public Health" and "The National Association for Study and Prevention of Tuberculosis" were presented. Viewing the work of such a Section alongside that of the Statistical and Laboratory sections we may make the comparison by saying the former is to the latter very much what applied chemistry is to research work done in the laboratory of experimental chemistry.

In 1910 a series of papers were presented dealing with the important problem of education in public health and especially with the relation of universities to public health. A full discussion on the subject is reported in the Transactions of that year. How far this relationship has developed is illustrated by the work being carried out under the Sage Foundation and the Rockefeller Institute, which not only have been engaged in studying the causes of some of the most obscure diseases, but have also through special grants been producing antitoxins and serums for wide distribution, as where Toronto University has supplied such in enormous amounts for the Canadian armies in the field and widening their activities through state organizations in field experiments on hookworm, pellagra and similar endemic diseases.

After annual meetings successively in Winnipeg, Richmond, and Milwaukee the Association found itself again in Cuba in 1911. Regarding that meeting the editorial in the monthly journal next succeeding the meeting says: "To visit Cuba today where under a Cabinet Minister, the talented M. Varro Suarez, a public health organization is moving as an army moves, is to witness a triumph of state medicine unequalled elsewhere in the world. This organization from the port inspection to the last detail of sanitation in the farthest province is efficiently officered at every step from the veteran chief Dr. Juan Guiteras, down to the last appointed inspector who may keep guard over a railway construction camp." It was at the Havana meeting that an important step was taken, which has been instrumental in placing the Association in the fortunate position, which will be illustrated in the other papers forming a part of this symposium. For several years the Transactions of the Association had been appearing at first in quarterly publication and later in monthly form as the JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION, associated with the publications of the Proceedings of the Massachusetts Board of Health. A Journal Committee was appointed at Havana to arrange if possible for the establishment of a journal on a stable basis with a paid editor and permanent business headquarters. The Committee's efforts proved successful, and the present position and standing of the Association are reflected in the pages of the AMERICAN JOURNAL OF PUBLIC HEALTH, the best edited, most comprehensive and scientific journal of health in the world. The monthly editions of the JOURNAL which appeared since January, 1912, have been very much in the present tense as regards the quality of the matters appearing, and will form a natural basis for the preparation of the two papers which are to follow. A mere enumeration of the work done by the several sections, by special standing committees and in papers read by individual members at even the last meeting demands considerable space wholly apart from any reference to the quality of the matters set forth. But the blue print issued recently giving a diagram of membership from 1872 to June 1, 1916, not only shows the ebb and flow in the progress of the Association, but further illustrates as nothing else could the distance we have travelled and the height of the influence and position we have attained in the forty years of our pilgrimage. We may truly

be said to have passed out from the forty years of sojourn in the wilderness and to have now been four years in the promised land of our hopes and desires. In drawing this necessarily imperfect and fragmentary history to a close I would use the words which I find written in the first number of the JOURNAL:

"To many whose lives have been spent in the work of preventive medicine it must appear that in no other field is the pilot-star so many-hued, alluring and inspiring. To make four blades of grass grow where one was, stimulates the agriculturist; but to make the solitary places of human life glad, to see not alone an individual, a community, a nation, but a whole world freed from the Damoclean sword of death ever hanging imminent in smallpox, cholera, yellow fever or plague and other infections, as tuberculosis, is to give the worker in public health a sense of potent influence over the lives of his fellow men and of close association with every one who works for human betterment and for the uplifting of mankind. If he thinks ontologically at all, he can no longer imagine human life only an accident, flotsam and jetsam, on a turbulent and never-resting sea, but rather that 'being' is an emanation from the Infinite Consciousness which makes the ego in us the occasion for the realization, by each—even in the smallest degree—that he is a constituent atom in Universal Mind, wherein is the definite idea illustrating not alone a common humanity, but also the manifestation of a universal good."



PUBLIC HEALTH PUBLICITY AND EDUCATION THROUGH PUBLIC SCHOOLS.

IRA S. WILE, M. D.,

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Read before the Public Health Administration Section, October 18, 1917, at Washington, D. C.

PUBLICITY and education, while identical in the minds of many, vary in an important particular. The mere presentation of facts to the public in terms presumably understood by the readers or hearers constitutes publicity. Whether education of the public results therefrom depends upon the mental attitude of those for whom and to whom the alleged educational material is presented. It is another illustration of an old adage in an altered form: You may take the water to the horse but you can't make it drink.

Publicity in public health in order to be effective must be apperceived by the public. The assimilation of the message of public health educators is a prerequisite for public education in matters pertaining to health.

The variations of nationalities in our country and the fact that a large percentage of the foreign and negro population is illiterate widens the gap in these cases between publicity and education. The publication of health messages in various languages does not guarantee their educational value in view of the fact that a reasonable proportion of those for whom translated statements are made are incapable of reading them, while the younger generation is especially trained in the reading of English. Education of the foreign born adult requires more than the visual projection of facts in wordy handbills or pamphlets. The pictorial appeal may attract attention and stimulate inquiry and be more more readily understood than much of the publicity material most generally employed.

The great promise of public health work lies in the training of the younger generation in methods of healthful living. The public and private school systems of the United States contain approximately 23,000,000, or one fifth of the population of the country. In 1914 there were 18,000,000 children in the public elementary schools. This large number of children is undergoing education in institutions organized in the interests of public welfare and carefully adjusted to the mental power of the pupils. The public school system of the United States is growing more and more to be the normal center of public education. Parents, teachers, and children constitute a normal point of entrance to almost every home in the country. The existence of the huge educational machinery should be more generally recognized as a valuable asset for those interested in public health publicity and education.

There is a large variety of methods directly available for extending the use-

fulness of the school systems along lines conducing to public health advancement. From the standpoint of results the educational function of health departments is relatively small compared with the potentialities of those whose daily duty and obligation it is to deal pedagogically with educational problems. What I have to suggest holds true equally for rural and urban school systems although, naturally, differences in methods will suggest themselves. Modifications will be required for adaptations to the peculiar problems of private schools.

The external parts of school buildings afford methods of publicity which merit attention. Bulletin boards for placards, announcements, and special notices to the passing public require little expenditure of time or money, especially if the bulletin boards are made by school children as part of their training in manual work. Roofs are frequently available for exhibits and demonstrations, pageants and lectures. The corridors may be made available for temporary or long term exhibits of special phases of public health as required for campaigns dealing with infant mortality, housing, tuberculosis, pure food and drug acts, etc. The auditoriums are insufficiently used during school assemblies, or at other times, for brief lectures or talks, lantern slide exhibitions, adapted moving pictures and similar other publicity agencies. The class room itself may be employed at times through the use of panels, drawings, pictures, special maps and graphs, small exhibits, etc. All these parts of the school plant may function for promoting publicity for special days, special weeks, or for promoting some specific health campaign. Thus a sunshine day, child labor day, a baby week or a health week may receive assistance as well as a campaign for the reduction of tuberculosis or for promoting safety first.

It is of paramount importance that the various public health agencies solicit and secure the coöperation of the educational authorities. All too frequently the public health publicity man loses sight of the full educational values of the publicity he desires to get over. The teaching force of the country is not fully alive to the educational content of health material. The two agencies working in harmony may secure most remarkable health educational benefits for the community. Consider the possibilities of harnessing up the energy, enthusiasm, and pedagogic power of 706,000 teachers over 522,000 of whom are serving in public elementary schools.

It is of vital importance to correlate publicity with public education—to establish the connections between the course of study as laid down by the educational authorities and the educational content of the publicity desired by the health authorities. Ordinarily publicity material is based upon the theory that the reading and hearing public will grasp its meaning. To have real educational value in a school system, however, it is absolutely necessary that the health material be presented and possibly be interpreted by the various grade teachers in terms that are understandable by the different groups of children studying in the normal graded classes of the schools.

Interest and enthusiasm may be developed by securing the actual participation of the school children in part of the problem or in all of it. Poster competitions have proven themselves exceedingly valuable and afford an opportunity of correlating the work in drawing with health propaganda. Composition writing on the various themes growing out of different phases of public health work offers unusual forms of training in English. The departments of cooking and domestic science may be utilized for the development of important thoughts connected with the sanitation and purity of foods, food conservation, and food values. Suggested problems in arithmetic involving facts of hygiene and vital statistics may provide examples involving the fundamental principles of arithmetic that are as serviceable for educational purposes as are the traditional problems drawn from the fields of commerce and industry now in general use. The ever increasing attention bestowed upon vocational and prevocational activities establishes a natural line of approach for developing the themes centering about industrial hygiene, first aid, safety devices, and sanitation.

A vast measure of benefit would ensue by the issuance of bulletins from time to time for the use of teachers in connection with school instruction, providing that a pedagogic advisor points out the ways in which such bulletins may be employed for furthering health and cultural education by relating the subject matter to physical training, civics, hygiene, physiology, domestic science, English, drawing, arithmetic, and various other types of normal school work.

Brief handbills, posters, and booklets may be found useful in the hands of children above the fifth grade if they are written in harmony with an understanding of the child mind, its mass of knowledge and psychology.

I believe that the giving of lectures to public school teachers would result in a more intelligent appreciation of their potentialities as public health educators.

There is no reason why children should not derive immeasurable advantages by understanding the purposes of medical inspection and school nursing, with some knowledge of their relation to the children's present welfare and future health, together with the interdependence of their physical power and resistance to communal health. Medical inspectors and school nurses present a medium for the education of school children, if they receive lectures by educators which will enable them to grasp the principles of education so necessary to vitalize their instruction to children. The fact that school nurses get back into the homes gives them an unusual value as educational factors in public health.

It is needless to point out the possibilities of utilizing school children for the purposes of distributing literature into the homes from which they come. To make mere messenger girls and boys of them is insufficient. They should know the content and value of the material they are carrying into the home so that they may help to interpret or emphasize its importance to the parents, who may be ignorant or

indifferent. It is perfectly true that school children are in the school for the purpose of learning, but the public health side must receive its adequate share of attention. If, however, the schools are employed intelligently and with judgment there is no reason to believe that the time of the teachers and children will be wasted in a rational attempt at public health education nor will the overstressing of health topics occur.

The average school child is under school direction, supervision, and inspiration for 6.16 years. The result of wisely utilizing these 1,232 days of elementary school life is by no means problematical although the methods of use may involve many difficult problems.

Very valuable agencies for coöperation between health organizers and the school system are to be found in types of school organization which seek to present miniatures of social life. The development of junior cities, school cities, sanitary squads, and little mother leagues, represent normal developments of the modern health idea. Thoughtful consideration to the possibilities of fostering, training, and employing these types of school organizations will reveal manifold plans and methods for encouraging a civic mindedness which recognizes in health social values of the utmost importance. Childhood responds quickly to the impetus and impulse derived from contact with older persons representing authority, and is anxious to function in a way that may be helpful to their homes and the districts of the community in which their homes are located. Here is an opportunity for the direct inculcation of a spirit of healthful citizenship.

The more extensive use of school plants which recognizes that schools may and should become civic centers for the adult population provides another resource the value of which has not been fully appreciated. Lectures by duly authorized and competent persons who can present in a popular way the dictates of modern hygiene and public health are of immense value in reaching the adults who are interested or may be interested in public health affairs. It is necessary that the lecturers be capable, tactful, sympathetic and able to use the language most generally employed by the hearers. I have found, however, that a large proportion of the non-English speaking population is capable of understanding lectures phrased in simple English. Their auditory vocabulary has been developed much more successfully than their speaking vocabulary. There are some groups of adults already organized in many progressive schools which afford an existent audience that requires but little cultivation. Parents' associations, kindergarten associations, teachers' organizations consist of groups of persons vitally interested in the school system and all that pertains to the development of school children. Failure to recognize the worth of these natural groupings for educational purposes is admittedly a dereliction on the part of the public health publicity agent. All forms of publicity are of service in such organizations, but particularly valuable are those discussions which

deal with the questions of contagious diseases and the cause, cure, and prevention of the numerous defects which afflict childhood.

I feel very strongly that petty jealousies of accomplishment must be set aside. The health departments and school departments are coördinate activities of communities. Their interaction and coöperation is essential to the finest development of education and health. For this reason a closer connection between the two departments is imperative.

The school system should be welcomed as an agency to point out the pedagogic weaknesses of public health publicity. The health department should be under the obligation of pointing out to the school authorities the weaknesses of school organization from the standpoint of hygiene. A tremendous amount of health education would result if health departments were advisory to school systems on all matters pertaining to the health of pupils, teachers, and employees. The importance of the teacher's health and the methods of attaining or retaining it, the advantages of annual physical examinations, the expression of opinion upon items dealing with school furniture, ventilation, lighting, books, playgrounds or special classes would serve in a most practical way to present public health opinion in a manner that would secure truly educational results.

Possibly an advisory board consisting of health officer, pedagogue, minister, business man, and labor official would make for better adapted health education in all directions.

Public health publicity must be dynamic in order to be educational. The vitalizing qualities do not lie in mere publicity. In order to secure the practical application of the facts which publicity seeks to impart there must be a conscious and well directed effort to secure its interpretation and acceptance by the great mass of people in the land. Unless the millions of children now in our public schools can receive and assimilate the ideas and concepts of public health, the work of publicity loses its most vital value for the future. It is far easier to inculcate methods of healthful living and to awaken an interest in public health problems in the plastic minds of the young than it is to correct the vicious unhygienic habits of an adult population and to convert an attitude of indifference into one of cordial coöperation and enthusiastic support. The inherent educational values of public health publicity can be and must be converted into terms understandable by children. The splendid machinery of educational institutions, urban and rural, public and private, is available for this purpose. The essential factor which is lacking appears to be the realization of the hygienic values of education and the educational content of civic hygiene and public health. When the health department and the school system both awaken to the singular opportunity they possess to advance communal welfare through systematic, organized and coöperative efforts, public health publicity will be transformed into the larger, broader, more effective and more vitalized public health education.

PUBLICITY IN HEALTH MATTERS A PUBLIC RIGHT.

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Read before the Public Health Administration Section, October 18, 1917, at Washington, D. C.

IN ALMOST every phase of human activity there is today an unrelenting conflict between the past and the present—between the things that were and the things that would be. It is the age-long contest which began with the beginning of man's social evolution. Throughout the long struggle unconsciously, sub-consciously or consciously, the goal has been individual happiness—in the phraseology of today, individual expression. To attain this—freedom to think, to speak, to act, was of prime importance. Experiments in forms of government and in codes of ethics which fill the annals of the nations are the concrete results of the underlying and universal feeling of the men of all countries and of all times. From age to age, the ideal was transformed and the purpose widened but the struggle was ever toward the same goal.

It is the great lesson of history that changes, progress, reforms, are slowly wrought. The few become possessed by a conviction. They believe a mode different from that which obtains would be a forward step. They bear witness to their faith, sometimes to their own undoing. A Socrates is condemned to drink the fatal hemlock. He is a victim of an inherited régime, but his death ushers in a new order.

We are accustomed to think of social progress in terms of incidents. The Magna Charta signifies the establishment of a political principle, but the demand for this instrument of government had its origin many many years before and the Charter is a formal expression of the idea that representation is the right of the governed. The French Revolution was the culmination of a long-smouldering resentment against privileges usurped by the ruling classes, and a manifestation of the desire for freedom of thought and speech. On the other hand, there are events of tremendous significance the influence of which is not realized for centuries. The discovery of gun powder brought the fall of the feudal state of society, but for a long period this result was unforeseen except by a few discerning statesmen. The invention of printing helped to apparently disrupt what had seemed the most stable institution of all time—the church.

In general, all discoveries which may be classed as scientific, whether they relate to industrial development or personal welfare, permeate slowly. Inventions which made possible the factory system of today were met with open resistance. The application of steam was characterized as "taking bread out of the mouths of the working man"—an outrage. Almost every medical discovery has had to fight its way into public favor. Distrust, toleration, acceptance, application, seems

the course which all new things must run.

From the pages of history then it is evident that education is the most effective, in fact, the only means by which a mode of thought or manner of life may be changed. This is likewise the consensus of present day opinion. Every leader or worker in any field of social effort emphasizes this fact as a major premise. They differ only as to the method of procedure. Within recent years the objective, perhaps one might be allowed to say, the sensational—the spectacular—has been in vogue. It has been applied, not always with success, even to educational literature. The psychology of this method is correct. Instruction to be acceptable must not only present, it must hold attention. This is why the motion picture is so successful and why so overworked. It is this which prompts the modern editor to write up the most serious matters in the light catchy modern style. Current taste demands that subject matter be presented in predigested, easily swallowed capsules, else it is voted too stiff a dose.

It is clear that those who would educate must find the right psychological basis. In health work it is most imperative that the fundamentals be agreed upon and that all educational activities be based on these. I believe publicity as to conditions to be one of the essentials. For example, if the morbidity statistics of a community are gathered, if accurate and complete and brought before the persons interested, the information must make some definite impression. Certainly, upon all who have even in a slight degree a sense of civic responsibility. Experience proves that the publication of correct data concerning the village, town or city in which a man lives will attract and hold attention. Further, if conditions are detrimental to health and can be remedied without too much effort or expense, action will be taken. Should a large expenditure be necessary, it is likely there will be no immediate results, but the civic need registered in the community consciousness will bear fruit later.

In anything so vital it would seem those concerned would welcome publicity as to conditions which are a menace, or even a possible menace, to health. But this is not the case. In general, they resent it. Records show that sanitary conditions everywhere are below what may be called a reasonable standard, yet the majority of those whose interests are involved, perhaps, 99 per cent, consider the publication of the shortcomings an insult to the village, town or city, in which they live. The reason for this is partly historical. Since time immemorial, morbidity and mortality facts have been suppressed; in the judgment of many good citizens, legitimately. Sins against sanitation and cleanliness were like the skeleton in the closet—no well bred person ever acknowledged or referred to them. The frantic efforts in the past of many cities to conceal cases of yellow fever or cholera are matters of record. This policy was thought to be not only commercial wisdom, but the duty of every loyal citizen to the stricken city. In those days no one knew whence the infection nor how it was spread. There was,

therefore, some excuse. Now, when proof is complete as to cause and means of control, concealment is nothing short of stupid. But the tradition of silence remains in the public mind. Many still feel that if outsiders do not know, the reputation of the community is safe.

This belief is strengthened by the attitude of the commercial interests. They think it folly to make public anything which may interfere with trade. An inheritance also. Time and again it has been shown the confidence which results from conviction that the truth will be given out more than overbalances the harm, but the public is still skeptical.

The masses, likewise, remain unconvinced that epidemical diseases can be controlled and eliminated. There is a lack of confidence in the health officer's direction and it is not thought a violation of good faith to conceal conditions or to ignore his orders. This is logical. Often, he has neither a force nor funds to make his authority respected, therefore, he can only make a request. In many states the courts do not yet feel any responsibility for the enforcement of sanitary law. They ignore refusals to register births and deaths and pass up appeals for assistance.

All these features of the attitude of the public toward health matters militate against a policy of publicity and are obstacles to the putting into effect of a system which in my judgment is both the legal and ethical right of the public.

There is, however, a phase which must be considered. It is the personal versus the community. To illustrate, last week we collected from every barber shop in eleven cities of the state, one or more brushes. These will be examined for crusts, blood, molds, or anything which may indicate them to be a possible or probable source of infection. Now, take the brush from the shop of a fine old gentleman who has operated a "tonsorial parlor" for many years. If it should prove to be unclean, the incident will have all the aspects of Browning's story of The Ring and the Book. There will be "one half" for him; the "other half" against; the *tertium quid* on both sides; the old gentleman, himself, who says, "he let them have 'him' (an old brush) what was never used." "Yes, it was dirty, but the shop is always clean"; the Board with the brush which means direct proof of violation of the law, and should there be a prosecution, the lawyers on both sides and the judge. How much harm will this do the owner of the shop? Will it destroy his prestige and ruin his trade? Will it on the other hand educate the public sufficiently to justify the publicity of a trial? What did it cost the Board in time and money to collect and examine the brushes? Will the experiment pay?

Convinced as he must be that publicity is the keynote to public education, the health officer is confronted daily many times with just such problems. Each is separate, each has both a personal and community aspect. While it seems arbitrary and ungenerous to subordinate the good of the individual unit to the good of the community, it is the only sane policy. As we grow increasingly into the realization of the reciprocal relations of the indi-

vidual and the social unit, the obligation to both becomes clearer and the burden of responsibility heavier. Many physicians and health officers no doubt think with Portia that mercy should season justice and rule in accordance. This in general means the individual is favored at the expense of the public.

While the utmost care should be exercised to give justice and every incident analyzed and passed upon on its own merits with comparisons eliminated, the principle of action should be protection of all. And to protect, those whose welfare is involved should understand. Therefore, though it may seem harsh, every incident should be dealt with as a public matter of grave importance—again let me say with as much lenity as may be possible in the interest of the individual. During eight years of personal experience this policy has proved its effectiveness as a means of education. The activities which show least progress are those which it has been impossible to bring before the public in a way that would interest and attract.

Today, we are proud, and justly so, of our own government as an exemplar of democracy. We are willing to make the most strenuous effort and to sacrifice whatever is needful that other nations of the earth may enjoy similar blessings. As a people we are convinced that political liberty is a *right*. But it was not always so. While the principle of democracy was in the hearts of many, it was not claimed as a right without a struggle which lasted hundreds of years. The masses were educated to believe and to demand.

It must be so with health. The people must come to feel that there are health rights as well as political rights. Then they will make the demand for publicity in all matters which pertain to health as they now demand even to the smallest detail, a public record of the representatives who expend their money and make their laws.

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Questionnaire on Disabled Men. The Division of Hygiene and Engineering of the Pennsylvania Department of Labor and Industry, Harrisburg, is sending out to the employers of that state a questionnaire to ascertain the positions now held by disabled men. It will in this way aid the United States government in its plans for training soldiers disabled in war service. Employers are requested to indicate the kind of work they have found for men handicapped in any direction, including health impairments.

Dermatitis Due to Moa Wood. *The Monthly Review, U. S. B. L. S.*, December, 1917, p. 204, abstracts an article from the *Berlin Vorwärts* describing an itching eruption breaking out on the arms and other parts of the body of three workmen who were working on this Australian wood species which is sometimes used in luxurious passenger steamers. Hospital treatment of the workers required three weeks. A crysalline alkaloid was found to be the real cause of the disease.

PUBLIC HEALTH EDUCATION AND THE FAMILY MAGAZINE.

C. E. Terry, M. D., and F. Schneider, Jr.,
The Delineator—Seventh Baby Campaign, New York City.

Read before the Public Health Administration Section, October 18, 1917, at Washington, D. C.

OUR present efforts of public health education can hardly be said to have more than scratched the surface. We have all come to see in the last few years that education will be the keynote of the public health of the future, and we have come to see that public health education is a present necessity. Public support is dependent on public understanding of our aims; and public hygiene, in the sense of the public's living in obedience to the rules of hygiene, is dependent upon knowledge of what these rules are. All this is trite and obvious. How far, however, have we progressed in our propaganda?

In considering this question, you will at once think of the bulletins issued by many of our leading health departments. Many of these bulletins are admirable. The material they contain may be scientifically sound, may be clearly and convincingly written, and the distribution of emphasis may leave nothing to be desired; yet as far as public education is concerned, the effect of these bulletins may be practically negligible.

Of course, the good health department bulletin is useful as a medium for the interchange of ideas among public health workers. As an interpreter of health department aims and activities to the medical profession, it is valuable. But as a medium for reaching the man in the street and the woman in the home, it is nearly futile. Its circulation is small (that of the *Weekly Bulletin* of the New York City Department of Health, is only 6,000), and it has the double disadvantage of being free material and of dealing entirely with one kind of subject. What busy mother would stop to plow through one of our best bulletins? What father would pick one up for an evening's reading? The bulletin assuredly has its place, but must never be mistaken for the medium of general education.

Running down the list of other mediums used by health departments for educational publicity, it appears that all are more or less open to the same or similar objections. The lecture reaches a comparatively small audience and even then must be given by a gifted person in order to be successful. Exhibits may be made to reach a larger audience, but require great effort and talent in preparation, suffer from sameness of subject, and require that their audience be specially assembled. Moving pictures offer greater possibilities, but as yet the utilization of health pictures in the regular houses, which, if practicable, would be their real field of usefulness, can hardly be said to have entered the experimental stage. Newspapers with their great circulation do

offer a chance to reach the public in general, but in this case the public is a very hastily reading one. Newspaper readers interested in health matters will doubtless form the habit of reading a health column, but whether many new readers will be attracted to the subject in this way is problematical.

What then can be offered as an ideal medium of public health education? What medium reaches all the people? What medium commands their interested and leisurely attention? What medium offers the variety of subject which is so desirable? In other words, what existing medium can be utilized for a saturation and resaturation of our public with the fundamental health truths which we wish to make an influential force in their subconscious minds?

Are not the great family magazines the medium we need? They have the circulation. The *Delineator*, for example, has a circulation of a million and a quarter and probably reaches three times that number of persons each month. Taking a dozen of our more widely circulated periodicals, we have a potential audience of over thirty millions. Furthermore, these magazines reach communities without organized public health work, such as could not be touched by bulletins or other health department activities. They also reach women in particular, a most valuable feature in the education of the growing generation. They are not subject to the newspapers' necessity of printing news, and reach a thoughtful, leisurely audience rather than a hasty and subway-riding one. As in the case of the moving picture house, their audience is assembled; and it is an audience which has paid for the privilege, and which by virtue of this fact places a higher value on what it obtains. In addition, the material in its columns is varied, its readers are not tired by a constant repetition of variations of the same subject. In short, is not the great family magazine the very medium by which we can reach the people in the way we wish?

Fortunately some magazine editors have seen their opportunity to use their pages for educational and welfare work. To quote a progressive editor:

"A magazine should be a storehouse of ammunition for the battles being fought from day to day. It should help the people who are doing things that are worth while. . . . Its function is to work over old plots into new stories, to rewrite biography and history in accordance with the taste of the times, to resurrect forgotten truths, to make crude information palatable, to convert abstract science into applied science, to throw a searchlight into dark spots of our civilization, to start new movements and to guide old ones, to wake up people who are asleep by sounding the burglar alarm, to twist around the heads of those who are looking backward over their shoulders; in short, to inspire, to instruct and to interest."*

Appreciation of this kind of editorial policy led the editor of the *Delineator*, Mrs. Honore Willsie, to open the pages of her magazine to a series of carefully

* *The Independent*, October, 1908.

planned articles on public health subjects and to infant hygiene in particular. Our work with the *Delineator* began modestly with a monthly column. It has since expanded to the point where one of the leading articles each month is devoted to a public health subject. In preparing these articles the aim has been to drive home the fundamental health truths in a new garb. The subject of infant mortality was chosen as being peculiarly suitable for a starting point, and as peculiarly adapted to the audience at hand. Special reliance has been placed on the fiction special; that is, the preparation of a story with the human interest aspects of regular fiction and in a regular fiction form, which is woven about some health subject. It has been the aim to make each one of these stories carry itself solely as a piece of fiction. Persons will read such stories as they would read any other story in the magazine, the public health point being made incidentally and indirectly, but, we believe, none the less forcibly.

Alternating with these stories, straight fact stories regarding conditions are inserted. Thus, in a recent issue of the magazine, there appeared a fiction-special hinging on motherhood and midwifery. In the following month's issue there appears an article telling in a strightforward way just what midwifery conditions are in this country, and just how these conditions may affect the reader and other members of her community.

Growing out of the magazine articles has come a new field service. The Seventh Baby Campaign—for such is the popular name of our effort—is no longer restricted to magazine articles. The *Delineator* has now gathered a force of trained and experienced public health nurses; and has secured two experienced laboratory men, Mr. Horatio N. Parker and Mr. Walter L. Dodd, and has equipped them with traveling laboratories for the examination of milk and water. With this field force, the magazine is offering to make careful inventories of infant mortality, and the conditions affecting it, in interested communities between 10,000 and 40,000 population. Such inventories have already been made in 11 cities, and are now being carried on continuously in seven cities at one time. All the field work is carefully supervised from the New York office, and at the end of the investigation a report is prepared by the authors of the present paper, dealing in detail with the conditions in the particular community, and outlining a program to meet the local situation. This program includes careful statements as to the cost of the measures recommended. The *Delineator* offered this service in response to a demand which had become evident after the magazine articles appeared, and offered it practically free. The only expense involved to local communities is that for the board and lodging of the nurse during her stay in the community, a matter of not over six weeks.

To advise and guide the whole campaign we have been fortunate in securing the services of a committee made up of Surgeon-General Rupert Blue, of the United States Public Health Service, Miss Ella P. Crandall,

Executive Secretary of the National Association for Public Health Nursing, and Professor Selskar M. Gunn, of the American Public Health Association. In all matters of policy the magazine is prepared to abide by the decision of this committee.

We feel that a particularly valuable feature of our field work is the use made of local committees. In each city where an inventory is undertaken, committees of local workers are organized to carry out certain simple functions, such as house-to-house visitation for the enumeration of wells and privies, and for the enumeration of births. In this way, a considerable number of local people are made familiar with the problems of the local health authorities, and so acquire an understanding of their aims and endeavors. In this way, also, an intelligent backing is developed for the conscientious health official. Under this arrangement the results of the inventory are more likely to develop into action, and a permanent interest in public health is developed.

Altogether, we feel that the Seventh Baby Campaign represents an important innovation both in journalism and in public health. Through the pages of the magazine we can reach a tremendous number of persons, and reach them under extraordinarily favorable conditions. By our field work we are able to give detailed and expert assistance to communities in meeting their particular problems. We feel that these two services, working hand in hand, should greatly strengthen the prestige of our public health work, that they should greatly assist health officers, and that they should perform an important service in the way of general health education.

If this medium of public health education is as important as we believe, it is obvious that its utilization by the other great national magazines is desirable. The potential power of our family magazines, collectively working for public health in this way, is tremendous. Furthermore, there is the alluring possibility, if not certainty, that success with health propaganda would lead these magazines to turn their attention to other phases of community welfare. The possibilities are almost limitless. Utilization of these great resources depends to a large extent, we believe, upon the success of the present experiment. If the *Delineator* campaign is a success other magazines will follow its lead. If it fails, the probability is that an important medium of public health education will be lost for a long time. We feel that our experiment is made under unusually favorable circumstances. We have a free hand to do the work in the best manner, and have the assistance of great editorial talent. Whether or not this great medium shall be saved for the people depends, however, to a large extent upon the endorsement by farsighted public health officials of the editorial policy involved.

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SERVICE OF STATE PUBLIC HEALTH LABORATORIES IN TIME OF WAR.*

HENRY ALBERT,

Director, Laboratories for the State Board of Health, University of Iowa, Iowa City, Iowa.

AT THE time when our countries —I refer to Canada and the United States—entered the great war in which we are now engaged, we asked ourselves the question as to what contribution we could individually make to help bring this war to a satisfactory close as speedily as possible. As members of this laboratory section, we might likewise ask what special service can be rendered by this section or the public health laboratory workers of the countries represented by this association. I am sure that we not only share with people in general the feeling that this is a time for greater patriotism, economy, sacrifice and devotion, but as workers in a special field we keenly appreciate that this is a time for the greatest possible efficiency. One of the factors of greatest importance in the securing of greatest efficiency is the conservation of health. With this conservation, the public health laboratories play a very important part.

I have accordingly chosen as the subject of my address on this occasion, "The Service of State Public Health Laboratories in Time of War." The conclusions here arrived at will apply also, more or less, to the work of municipal and other laboratories engaged in public health work.

In order to secure as definite information as possible I sent a questionnaire to the director of every state, territorial and provincial laboratory of the countries represented by this association. Forty-four replies were received. Such include replies from the laboratories of six Canadian provinces and also from one in Porto Rico. The data of these replies have been tabulated and conclusions drawn. I shall briefly discuss them in the order that the questions were asked.

QUESTION 1. *Has your laboratory been called upon to make examinations in connection with the mobilization of troops in your state?*

This question was answered by forty-four. Of these, thirty replied—yes; and the remaining fourteen—no.

This indicates that the state public health laboratories of considerably more than one-half of the states and territories of the United States and provinces of Canada have been called upon to make examinations in connection with the mobilization of troops. In some places only a few examinations were made; in others, a large number. Thus Doctor Stone of Vermont reports that they make most of the examinations for the 8,000 troops located at one of the forts of that state. Doctor

* Chairman's Address, Laboratory Section, Meeting of the American Public Health Association, Washington, D. C., October 17-20, 1917.

Naylor of Ontario reports that during the early months of the war they made a large number of routine bacteriological examinations for typhoid fever, diptheria, tuberculosis, etc. For some time past, however, all of this work except the making of typhoid vaccine, has been taken over by the military authorities who have well-equipped laboratories. It seems likely that with the better provision that will certainly be made for laboratory work under the immediate control of the army and the navy, there will be a decrease in the number of examinations that will be made by state public health laboratories for persons who are in active military service.

QUESTION 1A. *If so, what kinds of examinations have been made?*

Of those that answered the question, eighteen reported the making of examinations of water; four, of milk; fourteen, Widal for typhoid; nineteen, cultures for diptheria bacilli; fourteen, sputum for tubercle bacilli; nine, cerebrospinal fluid or nasal cultures for meningococci; nine, feces for typhoid carriers; three, feces for paratyphoid carriers; seven, Wassermann tests; five, smears for gonococci; one, blood for malaria and two, feces for hookworm. Five reported the making of typhoid vaccine and two the preparation of antitoxic and bactericidal sera.

Doctor Wadsworth reports that the New York State laboratory has supplied antipneumococcus serum for the treatment of certain cases of pneumonia. They have also supplied sera for the treatment of pneumonia, meningitis and dysentery to the United States Army and Navy and the armies of our allies abroad.

QUESTION 2. *What kinds of routine laboratory examinations do you make at the present time?*

This question was asked purely with the idea of making question No. 3 more intelligible. It is not necessary to present at this time a list of all of the different kinds of examinations made in the various state board of health laboratories. The subject was well covered in the address made by Professor Winslow as chairman of this section two years ago.

QUESTION 3. *What additional kinds of examinations are you prepared to make in large numbers, as for instance, the examination for—*

(a) *Meningococci in suspected carriers?*

(b) *Typhoid bacilli in suspected carriers, etc.?*

In answer to this question, a number of laboratories reported that they were not at present prepared to make a large number of examinations of a kind other than is represented by the routine work as done at present. A number reported that they could be prepared to do additional work on short notice; still others reported that in order to do additional work, additional provision in the way of funds would be necessary.

QUESTION 4. *What kinds of examinations should, in your opinion, the laboratory be prepared to make in case of the mobilization of troops in your state, in addition to those which you are now making?*

The list of examinations which laboratories should be prepared to make

corresponds very closely with the list given in the answer to question 1. A number of those who responded state that the laboratories should be prepared to make every kind of examination necessary to aid in the diagnosis of communicable diseases and to determine the presence of carriers. Doctor Stovall of Wisconsin recommends that all kinds of clinical laboratory work be done for soldiers. Doctor South of Kentucky recommends that all Southern troops be examined for hookworm and malaria. Doctor Arms of Florida emphasizes the attention that should be paid to examinations for hookworm. He states that they obtained one hundred forty-eight positives out of three hundred forty examinations made at the state camp at Jacksonville. He also suggests that it would be well for the North to pay more attention to this disease since it will no doubt become more widespread as a result of the transfer of troops.

QUESTION 5. *Are you prepared to undertake the additional work such would entail?*

This question was answered by thirty, sixteen of whom replied that they were now prepared to undertake such additional work as may be required by the mobilization of troops in their state and fourteen replied that it would require additions to the laboratory staff if such work should be attempted.

QUESTION 6. *Is your present appropriation sufficient to enable you to carry on such additional emergency work?*

Thirty-three replies to this question were received—fourteen in the affirmative and nineteen in the negative.

A number of those who responded by yes, qualified it by saying that it would be possible for them to take care of a moderate increase of work but that the funds available would not be sufficient to take care of a large increase of work. Several that answered "no" stated that in case the need should be great it might be possible to secure additional funds for that purpose. For instance, Doctor Chesley of Minnesota reported that the Public Safety Commission might grant funds if the need was very great.

QUESTION 7. *Are you prepared to establish a branch laboratory at an encampment or cantonment that may be located in your state?*

This question was answered by thirty-one; nine replied that they are prepared to establish a branch laboratory; the remaining twenty-three replied in the negative. Doctor Spoor of Michigan reports that they are not prepared to establish a branch laboratory at present but believes that proper arrangements could be made. Doctor Champion states that a branch laboratory for milk examinations has already been established in Massachusetts. In view of the fact that the laboratory serves most efficiently the community in which it is located, it is highly desirable that all states except a few of the smaller ones, should have branch or coöperative laboratories. If, at this particular time, the main laboratory is not located in the city adjacent to a rather permanent camp, and if the city adjacent to such does not have a well-conducted municipal laboratory, it is highly desirable that a branch

or coöperative laboratory of the state board of health be located at such a place. The example set by the New York State Board of Health of having a mobile laboratory which may be moved from place to place as may be required, may well be followed by other states.

I desire to call attention to the provision now being made by the Medical Advisory Committee of the Red Cross to equip four cars as laboratories and to use these car-laboratories in connection with emergency epidemiological investigations at the request of the Army, Navy and Public Health Service. Through the Public Health Service in conjunction with state boards of health they will be of special value in connection with investigative work in territory surrounding cantonments.

QUESTION 8. *Is your laboratory prepared to conduct or assist in doing field work such as:*

(a) *Water examinations, chemical and bacteriological?*

(b) *Other kinds of laboratory work?*

(c) *Sanitary surveys?*

(d) *Epidemiological investigations?*

A rather surprisingly large number of laboratories seem to be prepared to do field work. According to the replies, twenty-six are prepared to make water examinations and only three are not prepared for such; twenty-two are prepared to make other laboratory examinations in the field and only three not; twenty-three are prepared to make sanitary surveys and three not; twenty-seven are prepared to make epidemiological investigations and three not. A number failed to answer this question. In such a case it is quite likely that the answer would have been no. It seems safe to say, however, that more than one-half of our state board of health laboratories or closely related divisions of health work are prepared to do a large amount of field work. A number reported that certain phases of the field work were done by some other division of the state board of health or some other department.

As already stated, the New York State Board of Health has a mobile laboratory which may be used for field work. A year ago this mobile laboratory was sent to the Mexican border to conduct an investigation of an epidemic of paratyphoid fever.

QUESTION 9. *Will the enlistment of workers from your own laboratory interfere with—*

(a) *The routine work of your laboratory?*

(b) *The doing of additional work as may be made necessary by the mobilization of troops?*

Nine (a) was answered in the affirmative by seventeen; in the negative by eleven. Nine (b) was answered in the affirmative by eighteen; in the negative by nine. The amount of interference with laboratory work depends upon a number of factors; thus in Kentucky all of the laboratory workers are women; in Nebraska, all of the laboratory workers are above draft age, and in the province of Saskatchewan adjustments have been made so that the present laboratory workers consist of persons unfit for military service. In some places the interference has been marked, thus Doctor FitzRandolph of New Jersey

reports that they have lost four men already and that more will go; Doctor Shore of North Carolina states that three of their staff have left; Doctor Cox of North Dakota reports that exemptions have been asked for the three bacteriologists in charge of district laboratories in that state and that if such are not granted, the work will be very seriously affected.

Doctor Shore of North Carolina suggests that selective draft for physicians is desirable and that if such is done, those who are needed at home for important laboratory work will be directed to remain there.

Doctor Chesley of Minnesota reports that their work would suffer seriously for awhile if all of the persons who had applied for service in the Medical Corps or were subject to draft should be called.

QUESTION 10. *Is it likely that the enlistment or drafting of physicians or other laboratory workers in the army or navy will cause any of the private, commercial, hospital or "branch" laboratories in your state to be discontinued? If so, to what extent will the work of the central state health laboratory probably be increased?*

Two report that the enlistment or drafting of physicians will cause a discontinuance of the type of laboratories mentioned whereas fifteen believe that it will not cause a discontinuance of such. In a number of places, the work of such laboratories will be markedly interfered with; thus in Iowa the persons in charge of three such laboratories have entered the Medical Corps of the Army. Although two of these laboratories will continue to do work, there is no doubt but that such will be markedly interfered with.

Whether or not such interference will appreciably increase the work of the central state laboratory is doubted by most who answered this question. A few expect a definite increase.

In response to requests as to how state public health laboratories might aid the Medical Corps of the United States Army and Navy and the United States Public Health Service, the following letters were received:

I. FROM THE SURGEON-GENERAL OF THE WAR DEPARTMENT.

1. I beg to acknowledge the receipt of your letter of August 28, 1917, in regard to your address as chairman of the Laboratory Section of the American Public Health Association. I seriously doubt if it is possible for me to suggest anything which has not already occurred to you.

2. In general the army expects to take care of the men of the new armies from the day they are sworn in at the camps and to provide a proper environment in its camps, both here and abroad. In the same general way, it seems that the state health authorities should deliver its residents to the camps free from infectious diseases, and that it should stamp out or at least control the infectious diseases in the neighborhood of the camp, and for that matter, throughout the state, in order that men traveling back and forth from their homes may not introduce these diseases into the army camps. This is, we understand, practically what you are now doing, but the collecting of large numbers of

young men on the cantonments, makes the dangers potentially greater than they have been heretofore, and calls for extra vigilance and effort.

3. We hope that special attention may be given by the state and city health departments to the diagnosis, treatment and control of syphilitic and the other venereal diseases in the civil hospitals and dispensaries. It is the custom in many civil and most army hospitals to do routine Wassermann's on all patients except, perhaps, female pay patients, and we hope that this custom may be pushed by you. New York City now inspects and closes dispensaries which do not come up to its standard in the diagnosis and treatment of syphilis. Additional beds in hospitals for venereal cases and additional dispensaries, open in the evening are needed throughout the country, and we expect that your influence will lead to remedying this deplorable condition.

4. In addition, it goes without saying, we count upon your help in emergencies for any sort of public health work. This applies particularly to the supervision of hotels, restaurants, lunch places, etc., within a short distance of the camps where many men will go in their free hours, and to all railroad stations within the state, particularly those near camps. Not only should constant supervision be exercised over the general cleanliness of the station and grounds, tracks and sidings, but adequate and suitable toilet facilities should be provided. The water supplies of all these points, of course, require frequent examination. The prevention of mosquito and fly breeding in the neighborhood is of prime importance.

5. In this work it is, of course, impossible to consider the work of the sanitary inspector and the laboratory separately; they are so closely bound together, and no attempt has been made to emphasize one at the expense of the other.

6. The state health authorities can be of great assistance to the army at this time by informing the division surgeon, of the cantonment for their district, with a copy to the Surgeon-General, U. S. A., of the epidemic diseases reported in his district, together with reports of inspections, investigations and remedial measures.

By direction of the Surgeon-General.

(Signed) F. F. Russell,
Colonel, Medical Corps.

II. From the Surgeon-General, United States Navy.

In reference to your request for comment relative to the manner in which laboratories of State Boards of Health can be of service or assistance to the navy, I would say that under normal circumstances it will probably not be necessary to call upon such laboratories for any work, but the knowledge that they exist and are prepared to render assistance if called upon would in itself make them valuable.

Under unusual or unexpected circumstances, particularly in localities in which there may be situated recruiting stations, section bases, temporary camps, or collections of men awaiting transfer, State Boards of Health laboratories might render valuable

assistance in making such routine clinical investigations as sputum examinations, Wassermann tests, etc., and in case communicable diseases appeared it is conceivable that their willingness and ability to do cultural work might be of the greatest value.

Very truly yours,

(Signed) H. C. Braisted,
Surgeon-General, U. S. Navy.

III. From the United States Public Health Service.

I beg leave to acknowledge the receipt of your letter of the 28th ultimo inquiring as to ways in which laboratories of State Boards of Health might be of assistance to this service.

There is little doubt that some system of coöperation might be evolved which would be mutually helpful to the authorities concerned. State laboratories might directly or by means of properly equipped branches, aid in the control of infectious diseases in zones around military camps. The hygienic laboratory of the service might in its turn, as the practice has always been, extend its facilities to officials of state laboratories in order that these might receive training in special subjects.

Any definite plan of coöperation along the lines mentioned would of course have to be made the subject of an exchange of views in order to determine the available facilities in each state and the specific lines along which coöperation would be most profitable. After a conference to determine facilities and other means of coöperation, it would seem feasible to select certain large problems that would require laboratory work of a diverse character extending over a considerable period. The Hygienic Laboratory of the Public Health Service could be utilized as the central agency to coördinate the work, each laboratory, however, to publish its own findings and to be responsible for them. I have in mind problems such as the devising and improving of standards for water analysis, milk analysis, and sewage analysis. Other problems might include the examination and experimental use of disinfectants and other materials used in public health practice.

While the bulk of these problems would require months and years of coördinated effort, some data would undoubtedly be acquired which would be immediately useful in the present emergency. Then too, in carrying on the studies, a considerable amount of routine laboratory work might be arranged for in addition to that already undertaken by the several laboratories. By this means, the usefulness of laboratories to the public would be enhanced.

Very truly yours,

(Signed) F. H. Glennan,
Acting Surgeon-General.

Summary and Conclusions.

1. The public health laboratories of more than one-half of the states of the United States and provinces of Canada have made a considerable number of examinations in connection with the mobilization of troops.

2. The principal examinations which state laboratories have been making are for diphtheria, typhoid fever, typhoid and paratyphoid carriers, tuber-

culosis, meningitis and meningococcic carriers, gonorrhœa, syphilis, malaria and hookworm disease. The making of typhoid vaccine has also been an important function.

3. More than one-half of the state public health laboratories are prepared to do field work. This phase of laboratory service should be made possible in every state and province.

4. It is highly desirable that all states except the smaller ones should have branch or coöperative laboratories, in order to best serve the communities located a considerable distance from the central laboratory, and more especially, communities in the neighborhood of rather permanent military camps. A movable laboratory can take the place of such to a certain extent and in many instances may be even more serviceable.

5. The work of many state health laboratories has already been interfered with by the enlistment of some of the staff in the Medical Corps of the Army and by the calling of others through the draft.

It seems very important, and that too, from a military point of view that the efficiency of the state health laboratories should at this particular time be increased rather than diminished. Training to prepare for this kind of service requires considerable time. It seems, therefore, very desirable that through the operation of the selective draft, those who are greatly needed in public health laboratories should be left at that post of duty.

6. The state and provincial public health laboratories stand ready to aid the army and navy in every way possible. These services have, however, well-equipped laboratories and will as a rule not be in great need of aid from outside agencies for the care of those in their charge. The increase in the amount and scope of work of state public health laboratories in time of war will have to do principally with the civilian population.

It is exceedingly important that the health of all the people should be well conserved particularly at this time for the following reasons:

(a) In the prosecution of a great war like the present one, it is the duty of every person to do his best to help bring the war to a satisfactory close as speedily as possible. A person cannot do his best unless he is in good health.

(b) The forthcoming soldiers are drawn from the civilian population and should, very obviously, be in good physical condition when called to the colors.

(c) It is particularly desirable that the community in the neighborhood of rather permanent military camps and forts should be as free from communicable diseases as possible, so that the number of such cases contracted by soldiers and sailors may be reduced to a minimum. This applies not only to the diseases that are inclined to appear in extensive epidemic form, but also the venereal diseases.

(d) The transfer of troops from one country to another or from one section of a country to another will cause certain diseases to become more widespread. This will be particularly true of paratyphoid fever, typhus fever and hookworm disease.

7. The health laboratories of the countries represented by this association are cognizant of the responsibilities placed upon them by the war. Without exception, they will gladly meet that responsibility to the extent of their facilities. There are a number of laboratories that cannot render the service which adequately meets the demands of war, due to a lack of sufficient appropriation. In such places, no time should be lost to meet the deficiency. Nor need such additional appropriations be temporary—to exist only during the continuance of the war. After this war is over there will be just as great need for strong, vigorous and efficient men and women to carry on the constructive work that will need to be done, as there is at present. Increased appropriations should, therefore, be in the nature of permanent ones.

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Acute Lobar Pneumonia: Prevention and Serum Treatment. *Oswald T. Avery, H. T. Chickering, Rufus Cole, and A. R. Dochez. Monographs of the Rockefeller Institute for Medical Research. No. 7. October 16, 1917. Price $1.00.*

This monograph of the Rockefeller Institute explains in detail the present status of the problem of the prevention, treatment and cure of acute lobar pneumonia, with specific emphasis on its application to the health of the soldiers in the army cantonments.

The methods of laboratory aid in the diagnosis of pneumonia consist of isolating the pneumococcus from the lung sputum by the innoculation of white mice, or by cultivating the organism directly from the blood of the patient. In difficult cases lung puncture may be employed. By means of the agglutination and precipitin reactions that one of the four types of the pneumococcus to which the organism belongs is determined.

A therapeutic serum for infections due to Group I is administered intravenously in relatively large doses. No successful therapeutic sera for the other three groups have yet been prepared.

Healthy carriers are an important factor in the spread of this disease. Patients should be isolated and the same precautions employed to prevent their infecting other persons as are recognized as necessary in the case of epidemic meningitis.

The method of desensitization of patients subject to anaphylaxis is described in detail, as is the production of the anti-sera, and cases illustrating the method of treatment with immune sera are explained. Valuable statistics will also be found concerning the prevalence of the four types of pneumococci found in the mouths of patients and in the mouths of health individuals. At the hospital of the Rockefeller Institute 97 per cent of the cases of Type I pneumococcus infection recovered after the administration of serum in comparison to 70 per cent recovery of patients previous to the introduction of serum treatment.

The laboratory diagnosis of the type of pneumococcus infection is of great importance epidemiologically, for although no therapeutic serum is available for Types II, III, and IV, the focus of infection is determined, and thus may the dissemination of acute lobar pneumonia be restricted.

A. D. Hiller.

CONTROL OF TYPHOID FEVER IN CHICAGO.

HEMAN SPALDING, M. D.,
and
HERMAN N. BUNDESEN, M. D.,
Department of Health, Chicago, Ill.

Read before the Public Health Administration Section, American Public Health Association, October 20, 1917 at Washington, D. C.

CHICAGO, a city of more than two and a half million inhabitants at the present time, grew from nothing to its present size in the short period of eighty years, and necessarily so rapid a growth was attended by crudities in sanitation.

The site upon which the city is built was for the most part low and flat. Some of it was under water. The main business district had to be filled in and raised approximately eleven feet to its present level.

The water supply originally was from wells and the Chicago River which flowed through the center of the growing village into Lake Michigan. Later it became necessary to tunnel under the lake and secure water from a point a considerable distance from shore. In 1867 a tunnel was run out under the lake two and one-half miles from shore through which water was drawn. With a rapidly increasing population on a low, flat margin of the lake the problem was to keep the water free from contamination.

The Chicago River draining the low lands on the west of the city received sewage as it passed through the city and then emptied its contents into the lake. The Calumet River at South Chicago drained the swamp at the southern margin of the city and discharged into Lake Michigan at 92d Street, about ten miles from the intake of the city's drinking water. All the sewers, which did not discharge into the Chicago River were made to flow into the lake so the lake received all the sewage from the city either through these sewers or the river. The Stock Yards, located at one time on the margin of the lake and later on the south branch of the Chicago River, threw its waste and filth into the lake and river.

The conditions were such that an inch rainfall always contaminated the drinking water. This was the condition in 1890 and 1891. The provisions for supplying an adequate amount of water had not kept pace with the rapidly increasing population, and at times the water could not be forced to the upper stories of the buildings. The two and one-half mile crib was the only source of water until the four mile crib was opened in 1891. A tunnel had been run out into the lake 1,500 feet to be used as an emergency supply of water in case of fire.

This loaded shotgun made it possible for some one to commit a crime and the opportunity was not neglected. The sewage laden water from this 1,500 foot tunnel was turned into the drinking water with a resulting death-rate

of 174 per 100,000 population. No one was hanged or even tried for this crime. As the result of this contamination 1,997 died of typhoid fever in Chicago in 1891. This hastened the construction of more tunnels under the lake and to a greater distance from shore.

The completion and opening of the drainage canal, at a cost of $30,000,000, in 1900, reversed the flow of the Chicago River. All the sewage of the city, which formerly flowed into the lake, was turned into the Chicago River and carried down the drainage canal into the Illinois River. This, with the newly constructed tunnel put in operation in 1891, gave Chicago a pure water supply, except in the newly annexed districts with their own water supply taken from points too near shore.

But a pure water supply can be contaminated where many people dwell. Lake steamers passing the cribs or water intakes can contaminate the water with the excrements from thousands of passengers. The dredgings from the bottom of the sewage laden Chicago River dumped into the lake has at times been a source of contamination. Fifty or more men are at times employed on the crib or intake where the water enters the tunnels to keep ice from choking the inlet. These men can and do contaminate the drinking water. You cannot depend upon men to climb fifty or a hundred feet out of a well to seek the incinerator when in need of doing so. It is easier to use the well through which our drinking water flows. This man may be a "carrier" of typhoid fever bacilli. He may not start an epidemic, but he may kill a few. Men working in the well at the pumping stations on land are likewise a source of danger. Leakages into the wells from infected sources endanger the water supply. The safeguarding the water supply has long been left largely to the commissioner of public works who is not a doctor. The information as to the condition of the water supply has always been furnished to the commissioner of public works and the public from the Department of Health's laboratory. The dumping of dredgings into the lake and various sources of contamination have all been watched and their danger pointed out. For many years the Department of Health has been active in safeguarding the city's water supply, but not until quite recently has a special competent sanitarian been put in charge with authority to safeguard the water supply. No one but a competent, trained sanitarian with a conscience is fit for such a service. The average engineer cannot be relied upon to eliminate every source of contamination of the water. The 1,500 foot tunnel episode of 1890 and 1891 could not occur now. An outbreak of typhoid fever in February, 1916, the result of carelessness and ignorance on the part of employes whose business it was to keep sewage pumps going and the knowledge of the previously mentioned sources of contamination, led Dr. John Dill Robertson, commissioner of health, to take additional measures to systematically search out all sources of contamination of Chicago's water supply and apply remedies to keep it pure.

He detailed Dr. Herman N. Bundesen from the Bureau of Medical In-

spection to devote his entire time to the task of keeping the water free from contamination and in eliminating so far as possible all other sources of typhoid fever. This required an inquiry into every known source of typhoid infection in the water supply, the milk supply, food supply, the summer resorts visited by Chicagoans on vacations or automobile trips.

Chicago pumps approximately 800,000,000 gallons of water daily. All of this water is treated with liquid chlorine. The chlorine is placed into the water at the suction well, is then sucked through the well by engines and distributed into the discharge mains. The dosage varies from time to time depending upon the condition of the water. During the past year the dosage has been from one-tenth part per million parts of water, to two-tenths parts per million parts of water, the average dosage being fifteen hundredths parts per million parts.

Ortho-tolidin standards are placed in each pumping station. A medical inspector from the Health Department calls at each of the pumping stations not less than twice a week to make sure the chlorination is efficient. In addition to this, the engineer on each eight-hour watch at each pumping station also tests the water for free chlorine. The apparatus used in Chicago are the machines of the Electro Bleaching Gas Company and the Wallace and Tierman Company. That chlorine in the Chicago water supply is efficient is demonstrated by the fact that of the hundreds of samples of water taken in 1911 over 18 per cent showed colon in 1 cc.

Of the samples taken the first nine months of 1917 less than one-tenth of 1 per cent of the samples showed colon in 1 cc.

Typhoid fever in Chicago is reportable and a warning card is posted on the house in every case.

A case on being reported is visited by a supervising doctor from the Health Department. He instructs the family how to disinfect the dejecta; shows them what should be done to rid the house of flies; instructs the nurse in charge how to prevent the spread of typhoid infection; establishes a back-door quarantine and obtains all information available as to the possible sources of infection. By back-door quarantine is meant a quarantine which allows the members of the family to come and go at the convenience of the household, but which places restrictions upon those who handle food. The report of the supervisor is made on a blank which calls for specific information as to typhoid vaccinations, regular and occasional water-supply, regular and occasional milk-supply, ice, oysters, vegetables, etc.

In order to facilitate diagnosis, the municipal laboratory of the Health Department makes Widal examinations free of charge. If the specimen of blood for a Widal is submitted before the tenth day of the disease and gives a negative result, another blood specimen for test is requested to be taken after the tenth day. If a case of typhoid fever is reported without a Widal test, one is requested from the family physician.

1. All members of the household are

urged to be immunized and the attendant nursing the case *must* be immunized.

2. The patient must be actually isolated, visitors excluded and dejecta adequately disinfected before disposed of.

3. The attendant on the patient must have nothing to do with the family cooking, care of children or handling of food, except for the patient and self.

4. There must be a water-closet for the exclusive use of the patient's family.

5. The family must be sufficiently intelligent and willing to carry out the rules of the Department of Health for the home care of typhoid fever. Unless these rules are adhered to, the case is hospitalized.

Typhoid fever cases are terminated only by bacteriologic examinations of feces and urine. The specimens for examination are not to be collected before the tenth day after the temperature becomes finally normal. The patient must remain isolated until the negative result has been obtained.

Where the source of the infection is out of town, the local health officer and the state health officer in the city and state from which the case emanates are notified.

As soon as the case is reported, it is spotted on a map. The system used is as follows: A map, with a scale four inches to the mile, mounted on a swinging board is divided into nine districts by a thin, water-color outline of different colors. These color districts represent the approximate water supply from one of the various sources of supply. The case is then entered in the typhoid record book and is given a number. This number is posted on the map with an ordinary cloth covered tack until all available information is received. Information on the case must be in the office within twenty-four hours from the time it was assigned to the inspector. Different colored beads and tacks are used in making up this map. For instance for the twelve months of the year there are twelve different colored beads, such as blue, pink, white, etc. Thus, if the case had its definite date of onset in January, this would be denoted by a violet bead. These beads are attached to the map by different colored tacks, a red tack denoting that the case had contracted its infection out of town, a yellow tack denoting that it was due to contact, a green tack denoting the source of infection as due to water, a black tack denoting source of the infection—undetermined, as many tacks being used as are required to denote the different sources of infection. Should the case terminate fatally, it is surrounded by a small, black ring. Therefore, a case of typhoid fever occurring in January, having contracted its infection out of town, having terminated fatally and living in the Lake View pumping station district would be indicated as follows: A red tack and a purple bead, having small number attached, encircled by a black ring is posted at the number and street where the patient is under treatment, if the case was at a residence.

A supervising medical inspector has charge of the typhoid fever under the direction of the chief of the Bureau.

He is held directly responsible for the control of the disease.

In addition to the supervising doctor's inspection, a Health Department nurse calls at each home at frequent intervals and personally sees that the excretions are properly disinfected and that the rules are adhered to.

When the case is isolated in a hospital, the hospital attendant that is nursing the typhoid cases is not permitted to attend other cases of sickness, nor are other than typhoid cases permitted to be isolated in the same quarters.

"Carrier" cases are held under quarantine until the bowel and bladder discharges are found free from typhoid bacilli.

The following is a résumé of cases of typhoid fever reported to the Department of Health in 1916:

Total number of cases reported, 1,153. Of these, 119 (11 per cent) proved not to be cases.

Total cases counted, 1,034. These were distributed by months as follows:

January	63	August	140
February	150	September	104
March	105	October	104
April	56	November	65
May	66	December	52
June	59		
July	70		1,034

Of these 659 were males and 375 were females; 129 died (81 males and 48 females). As near as could be ascertained 306 (29.5 per cent) contracted the disease outside of Chicago; 70 (6.7 per cent) were in all probability due to direct contact with other cases; 21 (30 per cent) of these were doctors and nurses caring for typhoid cases. A localized milk epidemic was responsible for 24 (2.3 per cent) cases; 17 (1.6 per cent) were traced to food taken in a school lunch-room; 3 were traced to "carriers"; 105 (10.4 per cent) in all probability contracted the disease from the drinking water, the water at one of the pumping stations having been contaminated January 23. This pollution was discovered and warning to boil the water was sent through school children the following day; 105 cases resulted in the territory which was supplied with water by the pumping station where the sewage reached the water.

In 509 (50.7 per cent) cases the source of infection could not be traced; 238 of these cases handled food of some kind which was consumed by others: 181 housewives, 8 bakers, 7 butchers, 7 cooks, 19 nurses, 4 meat packers, 4 candy makers, 2 milkmen, 3 farmers, 1 maid, 1 grocer, 1 peddler.

The chlorination of the entire water supply was not accomplished until October 6, 1916.

The first nine months of 1917, 235 cases of typhoid fever were reported to the Department of Health, 28 of which died. For the same period last year 813 cases were reported, with 111 deaths resulting. By months the first nine months of 1917:

January	32	June	17
February	14	July	17
March	21	August	40
April	12	September	74
May	8		

PRACTICAL STANDARDS FOR FACTORY ILLUMINATION.

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Read before the American Public Health Association, Washington, D. C., October 18, 1917.

WHEN it is remembered that the eyes are among the hardest worked of all the organs of the body and that they are extremely sensitive to external conditions, it is not surprising that eye-strain and attendant headache and functional disorders are common where lighting conditions are bad.

In a recent report* of the British Ministry of Munitions in relation to munition workers in England and France, it is pointed out that the nation's "labor power should be as zealously safeguarded as its military strength." Good lighting is one of the important factors in safeguarding and conserving the health and life of the workers.

Advantages of Good Light.—While the necessity of good light is so evident that a list of its effects may seem commonplace, these same effects are of the greatest importance in their relation to factory and mill management. The effects of good light, both natural and artificial, and of bright and cheerful interior surroundings, include the following:

1. Reduction of accidents.
2. Greater accuracy in workmanship.
3. Decreased spoilage of product.
4. Increased production for the same labor.
5. Less eye-strain.
6. Better working and living conditions.
7. Greater contentment of the workmen.
8. Better order, cleanliness and neatness in the plant.
9. Easier supervision of the men.

In this paper an attempt will be made to set forth some of the practical standards that may be serviceable in formulating legislative enactments relating to factory illumination, and also in planning or remodeling the illumination of factories by artificial light.

Present Status of Factory Lighting.—An extended investigation of factories, mills, and workshops in different parts of the United States reveals the fact that notwithstanding the great advances in recent years, a large percentage of these factories is badly illuminated; that is to say, the lighting violates the general requirements of good artificial lighting, resulting in ocular fatigue of the workmen, and great loss of labor-power. Bare lamps causing glare are still in frequent evidence. In many cases the quantity of light generated is sufficient, but only a small percentage of the light reaches the work, by reason of failure

* Munition Workers in England and France, April, 1917.

to equip the lamps with suitable reflectors. A conservative figure for the outlay for light in this country the present year is $600,000,000. It is sad to say that the avoidable waste at the present rate will reach at least 25 per cent, or the amazing total of $150,000,000.

Bearing on this situation, the following quotation from a recent report* of the British Committee on Health of Munition Workers may be of interest as showing the status of factory lighting on the other side of the water:

"The question of artificial lighting is of a special importance at the present time when night work is general, and when women and boys are employed in large numbers. . . . Notwithstanding the important bearing which good eyesight must have upon output, the question is not today receiving adequate attention at the hands of those whose duty it is to obtain this output. . . . Bad lighting affects output unfavorably, not only by making good and rapid work more difficult, but by causing headaches and other effects of eye-strain. . . . Instances have come under the notice of the Committee, of headaches and eye-strain resulting from (a) inadequate light, both artificial and natural; (b) artificial light, adequate in amount, but so placed as to throw a glare on the eyes of the workers; (c) employment of workers, whose eyesight should be aided by suitable glasses, to carry out fine work without first testing their eyesight."

General Requirements of Artificial Lighting.—The requirements for good illumination in factories, mills and other work places may be summarized as follows:

1. Sufficient illumination should be provided for each workman irrespective of his position on the working space.

2. The lamps should be properly selected and so installed as to avoid or minimize strain on the eyes of the workmen. The type and size of lamp should be adapted to the particular ceiling height and class of work in question.

3. The lamps should be operated from sources of supply which will insure continuity of service and steadiness of light.

4. Adequate illumination should be provided from overhead lamps so that sharp shadows may be prevented as much as possible, and in such measure that individual lamps close to the work may be unnecessary except in special cases.

5. In addition to the illumination provided by overhead lamps, individual lamps should be placed close to the work if they are absolutely necessary, and in such cases the lamps should be provided with suitable opaque reflectors.

These requirements may now be met by means of the new types of electric and gas lamps, one type of which can usually be found for practically each factory and mill location, specially adapted to the general physical conditions of the location and character of the work in hand.

* Memorandum No. 9—British Ministry of Munitions on "Ventilation and Lighting of Munition Factories and Workshops," 1916. Memorandum No. 15—British Ministry of Munitions on The "Effect of Industrial Conditions upon Eyesight," 1916.

Standards of Light Intensity.—No one plan of lighting is suitable for all classes of work in factory lighting, but experience has shown that practical standards may be established for any particular class of work, or for individual operations. The whole field of industrial lighting has been roughly subdivided into eight divisions for which the minimum intensities of light required, together with the range of intensities found in ordinary acceptable practice, are given in the accompanying table which is quoted from the report of the United States Divisional Committee on Lighting of the Committee on Labor of the Council of National Defense. The data are based upon the findings of the Illuminating Engineering Society, as contained in their revised code of lighting factories, mills and other workplaces.

	*Foot-Candles** (*Lumens per Sq. Ft.*) *at the Work.*	
	Minimum	*Ordinary Practice.*
(a) Roadways and yard thoroughfares	0.02	0.05- 0.25
(b) Storage spaces	0.25	0.50- 1.00
(c) Stairways, passageways, aisles	0.25	0.75- 2.00
(d) Rough manufacturing such as rough machining, rough assembling, rough bench work	1.25	2.00- 4.00
(e) Rough manufacturing involving closer discrimination of detail	2.00	3.00- 6.00
(f) Fine manufacturing such as fine lathe work, pattern and tool making, light colored textiles	3.00	4.00- 8.00
(g) Special cases of fine work, such as watch making, engraving, drafting, dark colored textiles	5.00	10.00-15.00
(h) Office work such as accounting, typewriting, etc.	3.00	4.00- 8.00

NOTE.—Measurements of illumination are to be made at the work with a properly standardized portable photometer.

* The foot-candle, the common unit of illumination, is the lighting effect produced upon an object by a standard candle at a distance of one foot: at two feet, the effect would not be one-half foot-candle, but one-fourth foot-candle, etc. A lamp which would give off 16 candle power uniformly in all directions would produce a uniform illumination of one foot-candle at a distance of four feet in any direction.

The flux of light is measured in lumens. A lumen is the unit of light flux and is the quantity of light required to illuminate one square foot of area to an average intensity of one foot-candle.

Portable Photometers.—Until quite recently it was difficult to put into practice rules for standard illumination requirements in factories, because the instruments available for testing purposes required expert knowledge of photometry to operate satisfactorily and moreover were too expensive to popularize their use. This problem has been solved by the invention of several types of inexpensive portable photometers that do not require expert knowledge to use, so that there is no reason now why every factory should not be equipped with a foot-candle meter or illumination tester. Such an instrument enables the factory manager, superintendent or inspector to determine for himself whether the proper standards of light intensity are attained in the different parts of the factory.

For all ordinary purposes in factory lighting, the type of instrument that I now show is satisfactory. You will note that this small portable foot-candle meter has no moving parts except a pointer which is set at a fixed marked position once for all when starting the light tests.

Standards of Brightness.—Intensity of illumination is only one of the factors on which good seeing depends. The intensity of light on the work may be quite sufficient to meet the

prescribed standards but the illumination may nevertheless be bad because there is a glare from the lamps, or an unsuitable distribution of light on the work, or both.

Except in rather rare instances, exposed bare lamps should not be used. Lamps should be adequately shaded or completely hidden. Even when shaded by translucent media, such as dense glassware, the lighting units should be placed well out of the ordinary range of view, and their brightness should preferably not exceed *250 millilamberts** unless they are completely out of the field of view and do not cause troublesome reflections.

For purposes of comparison, it may be stated that the brightness of a clear blue sky in bright daylight is approximately 1,000 millilamberts. The brightness of a ten-inch opal glass ball containing a lighted 100-watt vacuum tungsten lamp at center is approxiproximately 500 millilamberts; vacuum tungsten lamp frosted, 2,000 to 3,000; vacuum tungsten lamp, filament exposed to view, 500,000; gas-filled tungsten lamp, filament exposed to view, 2,000,000; gas mantle, bare, 15,000; gas mantle concealed in six-inch opal glass globe, 1,000; mercury arc tube (glass), 8,000.

The maximum *brightness contrast* of juxtaposed surfaces in the normal visual field should be preferably not greater than 20 to 1; that is to say, the darkest part of the working space observed should have a brightness preferably not less than one-twentieth of that of the brightest part. If strictly local lighting is used, that is to say, if the well-known but antiquated system of drop lamps is used exclusively, no provision being made for adequate general illumination of the room, the figure for brightness contrast will greatly exceed the standard given above; hence it has been proposed in the state of Wisconsin* to "forbid the use of local lamps only, since with their use the field of illumination from each lamp is in sharp contrast to the surrounding darkness and causes severe eye-strain and increases accident hazard. When the local lighting is used there must be employed in addition a moderate intensity of overhead lighting uniformly distributed."

Standards of Distribution.—Lamps should be so installed in regard to height, spacing, reflectors or other accessories, as to secure a good distribution of light on the work, avoiding objectionable shadows and sharp contrasts of intensity. The illumination on the working plane should be as uniform as possible.

The *variation range* of illumination, that is to say the ratio of the maximum illumination to the minimum illumination, is a measure of the distribution of light and should preferably be less than 3 to 1 and not greater than 4 to 1, as relating to the machinery or work benches as the case may be. As relating to machinery and adjoining passageways the range may, of course, be much wider but should preferably not exceed 20 to 1.

* A millilambert (one-thousandth of a lambert, the unit of brightness) is equal to the brightness of a perfectly reflecting and diffusing surface illuminated to an intensity of 0.929 foot-candle (0.929 lumen per square foot).

* Industrial Lighting Handbook issued by the Industrial Commission of Wisconsin, 1917.

This ratio should not be confused with the ratio of 20 to 1 previously given for brightness contrast of juxtaposed surfaces which refers to the light radiated by the object. For example, a blackboard and a white sheet of paper on it may receive the same amount of light, but the latter will reflect much more light than the former, thus causing a marked contrast between the two surfaces.

Emergency Lighting.—In industrial lighting, good practice requires that in sizable factories and mills, emergency lamps should be provided in all work space aisles, stairways, passageways, and exits to provide for reliable operation, when through accident or other cause, the regular lighting is extinguished. The best practice dictates that such lamps should be in operation concurrently with the regular lighting and independent thereof.

Switch-Control.—Switching or controlling apparatus should be so placed that at least pilot or night lamps may be turned on at the main point of entrance.

Protective Lighting.—The standards previously given for the illumination of roadways and yard thoroughfares are intended to apply in times of peace. During times of war, special precautions for protection of industrial plants should be taken. Although the practice of protective lighting for this purpose has not been standardized, there are on the market numerous lighting devices and equipment that have been found in practice to meet all the requirements. Among these are dome-shaped and angle reflectors, refractors, and flood lighting and searchlight projectors.

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Army Surgeons Wanted.—At the present time there are approximately 650 vacancies in the Medical Corps of the Army. With the view of filling these, examinations of applicants are being held throughout the country on the first Monday in each month.

Full information concerning the examination may be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation to report for examination are that the applicant shall be a citizen of the United States, between 22 and 32 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, of good moral character and habits, and shall have had at least one year's post-graduate hospital interneship.

Those applicants who successfully pass the examination are commissioned first lieutenants in the Medical Reserve Corps, and sent to either the Army Medical School in Washington, or to a training camp for a course of instruction, covering a period of approximately three months, during which time they draw the pay and allowances of their grade. If, at the close of their instruction, they pass the final examination, and are favorably recommended, they are commissioned first lieutenants in the Medical Corps of the Regular Army.

A first lieutenant receives $2,000 per year and is promoted at the end of five years to captain, subject to examination, and receives $2,400 a year and up. Attached to the rank of major is $3,000 a year, to which 10 per cent is added for each five years' service. The maximum monthly pay of lieutenant-colonel, colonel, and brigadier-general si $375, $416.66, and $500 respectively. Officers in addition to their pay proper are furnished with allowances of quarters according to rank.

EFFECT OF THE WAR ON THE PRODUCTION OF GARBAGE AND METHODS OF DISPOSAL.

IRWIN S. OSBORN,
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THE effect of the war on the production of garbage and methods of disposal has become very apparent during the past nine months. At the present time it has become vital from many standpoints. The education of the public to conservation of food, together with the necessity of conservation due to high cost of food products, is tending to change the problem of disposal. What the ultimate result will be is indeterminate at this time, as we are just beginning to realize that a great change is taking place, which will no doubt revolutionize this branch of sanitary engineering.

The effect of the war on the production of garbage and disposal methods are evident from following sources:

1. The decrease in the quantity produced per capita.

2. The decrease in quality or values recoverable by present day practice.

3. The tendency to change methods of disposal whereby garbage will be utilized.

The decrease in the quantity of garbage has been largely due to the increased price of foodstuffs and the conservation movement which has been started by the United States Food Administration to eliminate food wastes. Up to the present time the increased prices have, no doubt, had more effect in reducing the quantity than the conservation movement.

A reduction in the quantity of garbage is found in nearly every city, although there are few cases where the quantities have increased this year over previous years. From the studies made by the United States Food Administration, it was found that the results from approximately sixty cities, which reported on the amount of garbage collected, was an average decrease of from 12 to 15 per cent, although in some other cities an increase is shown over previous years.

The reports show, in many cases, an excessive decrease while on an examination of local conditions it is found that less attention has been given to collection, and in many cases garbage has been collected by private collectors for feeding or rendering. On account of the high values of pork, as well as the by-products that can be recovered by reduction, private collectors are more numerous than in former years. No doubt the decrease would have been considerably greater, except for the large amount of vegetable wastes going into the garbage pail from home gardens, which were the result of agitation the early part of the year.

The decrease in the quantity of garbage may not necessarily show a saving made, as regards the elimination of food wastes. The amount of grease recovered from the garbage, however, is a better indicator than the quantity of garbage collected.

While the quantity of garbage may not continue to decrease, as this factor is regulated largely by seasonal crops which vary from year to year, or the increased amount of fresh vegetables from home gardens, or an exceptional amount of home canning or preserving, there can be little doubt that the quantity of grease to be recovered from a ton of garbage will continue downward while the present conditions as to foods continue.

The meats are the chief source of grease in garbage. From the data collected during the past nine months where recoveries of grease from garbage are made, it shows a decrease of 30 per cent in the amount recovered over the same period during the year 1916, but the actual percentage of grease per ton of garbage shows a reduction of approximately 15 per cent. No doubt there has been a greater reduction in the consumption of meats, than was indicated by the decrease in the amount of grease recoverable from garbage. This is evidenced today in the purchase of meat at practically every market, where the scraps, gristle, rind, bone, in fact all wastes which were originally trimmed off and sold to rendering companies are now, in the majority of cases, pushed off on the purchaser at the price of the edible meat purchased, so that in proportion to the amount of meat that is now purchased, a greater waste is found by the purchaser than formerly. The chief evidence of this is found in the reduced amount of scraps that were formerly purchased by rendering companies, and the shortage of this material in proportion to the total amount of meats sold at the present time.

One of the noticeable features on investigation, as regards the change in garbage, is the fact that the greatest change as to quantity and quality is found in what is known as the middle class. This is, no doubt, due to the fact that the wealthier class have not changed their mode of living on account of the high cost of foods and are able to afford the same at the increased cost. The poorer section, made up principally of laborers, have been in a position to purchase food at the higher prices, on account of the high prices paid for labor, and the increased money available. The middle class, however, have not had a corresponding increase in income comparable with the increased cost of foods.

The decrease in garbage produced will no doubt continue, not only during the period of the war, but several years following, due to the habits that are formed by the people in the preparing or conserving of food, and that in the majority of cases there will of necessity be a re-adjustment of conditions insofar as disposal work is concerned. The disposal of garbage from necessity will change to meet the future conditions.

The methods for the disposal of garbage at the present time, can be classified as follows:

1. Burial.
2. Dumping.
3. Incineration.
4. Feeding.
5. Reduction.

The first two, Burial and Dumping, are carried on at a low cost, but the

only result obtained is the getting rid of the material. The values are lost, and unless proper attention is given they are liable to create a nuisance.

Until recently, there has been a strong tendency towards Incineration, especially among the smaller cities. This method, in nearly every case, has been carried on at a considerable expense to the municipality, both for installation as well as operation, with no returns from any source, except in very few cases where power has been developed, but in most instances the cost of development has been greater than the revenue obtained.

There is a strong tendency at the present time towards the adoption of other methods of disposal instead of Incineration, whereby valuable returns may be made from garbage, which would be destroyed. Cities contemplating the installation of incinerators have adopted methods for utilization, and in some cases where incineration plants have been in service for a number of years there is a movement to abandon this practice, and adopt methods whereby garbage will be utilized.

Realizing the shortage of materials, such as garbage contains, the method of destruction from the standpoint of conservation is wrong, although from a sanitary standpoint this method of disposal can be considered one of the most desirable.

Disposal by Feeding, or the adoption of piggeries for the disposal of garbage, is a method that will be found desirable in a great number of cities, although in the larger cities no doubt other methods more suitable can be adopted. It is being demonstrated that, where proper care is given to this method of disposal, very satisfactory results are obtained, and no doubt with more attention given to this method greater advance will be made.

To the average mind, the feeding of garbage to hogs is very objectionable, but when ordinary precautions are taken with regard to cleanliness, the feeding can be done in a wholly unobjectionable manner, and when conducted properly in a business-like manner, there can be little objection to this method of disposal.

When we realize that from each 1,000 population there is produced waste from the preparation of food sufficient to maintain twenty-five hogs and develop them to a point ready for the market, it is evident that by this method of disposal one of the greatest economies can be obtained when properly conducted.

With the present price of pork, garbage when disposed of by feeding will produce from $7 to $8 in value for each ton.

It is evident from the values that can be obtained from this source, that, in the smaller cities and communities where garbage can be properly collected and controlled, no other method of disposal will show the same returns from an economical standpoint as the feeding to pigs, and no doubt there will be a great tendency towards the adoption of this method under the present prevailing conditions, as well as the future conditions which are expected.

The method of disposal whereby

garbage is reduced and the valuable by-products are recovered in the form of grease and fertilizer tankage no doubt will continue to dispose of the garbage produced from the larger cities and prove to be the most advantageous method that can be adopted, under proper conditions. The decrease in the quantity of garbage, as well as the values that can be recovered, will influence to a large extent this method of disposal. There will, no doubt, however, be sufficient wastes in the larger communities having sufficient values to warrant the adoption of this method.

The decrease in quantities of by-products to be recovered will to a large extent be offset by the increased values of the by-products, and at the same time there will be a tendency to recover additional by-products not now attempted. There are developments under way at the present time, and equipment being installed, whereby additional recoveries beside tankage and grease will be made.

From present indications, garbage will be more valuable for the recovery of by-products than when the grease and tankage were obtained in larger quantities. There is an ever increasing demand for the tankage produced from garbage for use in the manufacture of fertilizer. A large amount of animal tankage formerly used for fertilizer has been deflected into other sources, so that at the present time there is a great shortage of this material.

There has been objection to garbage tankage as a fertilizer. The price of nitrogenous fertilizer is determined by the available nitrogen. By the old methods of determining the available nitrogen of garbage tankage, it was found to be low, but from the actual soil tests made by the United States Department of Agriculture, Bureau of Soils, it was found that the material decomposed readily, and afforded a rapid available nitrogen supply. The necessity for the use of all available nitrogenous fertilizer material will make a greater demand, and no doubt garbage tankage will be considered equal to other materials for the manufacture of fertilizer.

The values of the by-products produced by the existing reduction plants at present prices will amount to $8,500,000 for grease and $2,250,000 for fertilizer tankage.

From the garbage tankage as produced from all the reduction plants at the present time, there can be produced annually about 9,000,000 pounds of nitrogen, 25,000,000 pounds bone phosphate lime, and 2,500,000 pounds of potash. The grease that is produced is split up into various by-products, the glycerine content being the most valuable. From the garbage grease produced in the plants operating in the United States, 8,000,000 pounds of nitro-glycerine can be produced from the recovered glycerine, after which from the grease used for the manufacture of soaps there can be produced approximately 200,000,000 twelve-ounce cakes of soap.

The amount of garbage that is produced per capita per day is small, but, when we realize all the wastes that are produced in this form from the total population, the amount is tremendous.

There are two sides to the problem of utilization—its cost to the community and the revenues that can be obtained from utilization, and when we consider the problem of conservation, even if there were no revenues, it is desirable to utilize all valuable elements which otherwise would be wasted.

There is a great shortage of the materials that can be produced from garbage. It is not a question of profit; every community should utilize its wastes, and make available from this source everything possible for the country's needs.

The food problem will not end with the war. The shortage of fats and fertilizer will remain a problem for years to come, and the installation of proper methods for the utilization of garbage will not only contribute to help under present conditions, but will remain a permanent benefit for future years. The public will not soon forget the present lessons being taught in economy. The effects of this will remain long after the necessity has disappeared, and, no doubt, the public will never again waste so much, through the medium of the garbage can, as has been done in the past.

PRACTICAL ASPECTS OF DEHYDRATED FOODS.

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When the United States entered the great war and it became apparent that we should have to take the same care of our available supplies of food as was being done by the warring nations of Europe, one of the first methods of conservation proposed was the addition to the fully developed canning, pickling and the like, of the oldest of them, to wit, drying. Those of us who are country-raised and particularly those of the South and West will remember the drying stands for peaches and apples and the yellow strips of pumpkin, which, in the remoter parts of the country, were an almost invariable feature of the landscape in the late summer and early autumn months. The products thus obtained were excellent in their nutrient qualities and palatability but often left something to be desired from the standpoint of appearance. The great prevalence of canning and the quality of its products together with the propaganda work instituted by the canners, without doubt had a good deal to do with the failure to develop the dehydrating industry in the United States; possibly, however, of greater importance, as explaining the much larger relative development of this industry in Germany, is the fact that the United States is, as compared with that country, a comparatively small producer of potatoes. Germany produces per capita almost twenty times as much. The conservation problem, therefore, on this product is much more acute and has been met in Germany largely by dehydration, and the development of the process with potatoes has had its effect on other vegetables.

Dehydration is perfectly practical for much the larger portion of our list of vege-

tables and, as practiced, consists merely in reducing the sound fruits or vegetables to suitable sized pieces and the subjecting of this material to heat; a certain humidity in the drying atmosphere is of very great value in producing a satisfactory product.

The advantages to be derived from the development of dehydration in the United States are as follows:

1. The enabling of the purchase by the poor in cities of vegetables the year round.

2. A better balancing of the American dietary, which is deficient in vegetable elements as compared with that of European nations.

3. The utilization of surplus now remaining in growing districts caused by the seasonal overlapping of production in different latitudes or by too rapid ripening, shortage of labor, unfavorable weather conditions, etc.

4. Lessening of the demands on railroads for tonnage and car space, both because of the elimination of the water in the products and of the expensive and heavy crates, barrels, etc. now used.

5. Proceeding from all of the above, an increase in production and consumption of vegetables and a decrease in consumption of the staples,—grains and meats.

6. Somewhat subordinate, a relief of the housewife from the trouble of preparing the fresh vegetables because the dehydrated product is ready at once to be cooked.

There is at this time no civilian market ready to take such material. Because of the great interest in the subject the matter has been brought strongly to the attention of the War and Navy Departments and it appears at this time probable that both of these are inclined to follow the European example and make such products an integral part of the army ration. Both for such purposes and for civilian use it is necessary that materials of the highest possible quality be produced. With the efforts that are being made all over the United States to develop the industry, it is certain that many mistakes will be made in production, with the result of a great deal of inferior material coming on the market. The necessity for standardization of quality therefore is apparent, and and it appears probable that only with such standardization of quality can a market in civil life be created. It seems, therefore, reasonable to suggest that the federal government should at once address itself, through the Food Administration and the Agricultural Department, to the matter of establishing grades and that only materials of a specified grade should be allowed to be sold. Just what machinery will be necessary for this cannot be suggested at this time. A system of licenses predicated on proper equipment to begin with and on the continued production of standard material suggests itself. Another system would be one analagous to the system of meat inspection now conducted by the Bureau of Animal Industry.

On the business side of the matter, it would appear that the quickest method of obtaining an aggregate production of considerable size would be the establishment in producing centers of comparatively small units. Except in the growing of potatoes a sufficient production within a reasonable radius to maintain a large unit would have to be developed. Small units would be of comparatively low cost but such supervision as has been suggested would be absolutely necessary in order that uniformity of product could be procured. It is obvious, too, that small units could be profitably attached to canneries, small flour mills or any other manufacturing establishments already provided with buildings and power.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH

THE annual meeting of the Massachusetts Association of Boards of Health was held at the Hotel Victoria, Boston, Thursday, January 31, 1918.

It was voted to dispense with reading the record of the preceding meeting.

On recommendation of the Executive Committee the following applicants were admitted to membership in the Association: Mr. A. W. Hedrick, 126 Massachusetts Ave., Boston; Dr. Franklin C. Downing, Stockbridge; Dr. Ralph E. Foss, 97 Main St., Peabody; Dr. Charles H. Phillips, Health Department, Beverly.

The Treasurer, Dr. F. G. Curtis, presented the following report which was accepted and placed on file:

FRANCIS GEO. CURTIS, *Treasurer, in account with the Massachusetts Association of Boards of Health.*

DR.	
Balance from 1916	$531 91
Receipts for 1917 (dues, interest, etc.)	445 22
	$977 13
CR.	
Printing, postage, etc., for Secretary	$96 32
American Public Health Association for Journals	216 12
Printing, postage, incorrigible consumptives bill	19 68
Printing and postage for Treasurer	13 00
Reporting April meeting	36 00
Legal services (2 years)	300 00
Sundry small expenses	10 00
	691 12
Balance to 1918	286 01
	$977 13

It was unanimously voted that the Association approve House Bill 612 for the control of Incorrigible Consumptives.

The following paper was read:

"Account of the Smallpox Epidemic in Worcester, 1917," Dr. E. H. Trowbridge, Chairman, Board of Health, Worcester, Mass.

The Nominating Committee reported in favor of the following officers of the Association for the ensuing year and it was unanimously voted to instruct the Secretary to cast one ballot for their election:

President, John S. Hitchcock, M. D., Northampton.

First Vice-President, W. G. Kirschbaum, New Bedford.

Second Vice-President, L. M. Palmer, M. D., Framingham.

Secretary, James C. Coffey, Worcester.

Treasurer, F. G. Curtis, M. D., Newton.

Executive Committee, W. L. Young, Springfield; Dr. C. W. Milliken, Barnstable; F. A. Bates, Lowell; Dr. D. D. Brough, Boston; Dr. G. T. Swarts, Providence.

FRANCIS H. SLACK,
Secretary.

THURSDAY, January 31, 1918.

At the meeting of the Executive Committee of the Massachusetts Association of Boards of Health it was voted to reappoint Dr. G. L. Tobey of Clinton as chairman of the Executive Committee and to continue legislative counsel as heretofore at cost of $150.

F. H. SLACK,
Secretary.

*

Treatment of Bacilli Carriers.—The author noticed that the serum of patients convalescing from typhoid never contained agglutinins in any proportion when typhoid bacilli could still be found in their stools. This suggested that by artificially increasing the agglutinins it may be possible to free the men from the bacilli. He consequently gave a small injection of antityphoid vaccine. There was always a pronounced general reaction, and the typhoid bacilli disappeared from the stools thereafter. Although his experience is limited, the unfailing success justifies trials of this means of curing carriers of typhoid and possibly of other germs. —L. Preti, *Reforma Medica, 33, 973 (1917); Jour. Am. Med. Assn., 69, 2212 (1917).*

PHYSICAL PREPAREDNESS.

GEORGE B. YOUNG,
Surgeon, U. S. Public Health Service, Norfolk, Va.

THE declaration of war found the nation unprepared for its responsibilities: unprepared in its means, its methods, in its mind and in its men. The means we must now hastily and wastefully provide. The methods will be corrected though at an appalling cost in both money and lives. The unpreparedness of the spirit is passing rapidly and when the long casualty lists begin to come in and bring to every hamlet and countryside the realization of the cost of the great crusade upon which we have embarked it will vanish in the flames of a passionate resolve that never again shall we be found inattentive to the elementary provision for the protection of our national existence.

When we come to consider our physical unpreparedness, however, we realize at once that our deficiencies cannot be immediately or even presently corrected. It is of this phase of our unpreparedness and the methods to be followed in its correction that I wish to speak. Let us appraise the situation before seeking a remedy. What we may call the gross total of our military man-power under the present law embraces all males of from 21 to 30. The net total consists of the number of those physically able to serve that can be spared from the vitally necessary national activities. The law is an absurdly inadequate attempt to meet our real requirements though it may suffice to supply our present necessities; but we must make the best of it we can. We need not bother with the exact figures; indeed, as yet we can only guess the net totals available; but this we do know that before any questions can be settled as to exemption on account of indispensability or dependents the physically unfit must be excluded from the roster. How many of these are there and what are the causes of their unfitness? Complete figures from the first and second drafts are not yet at hand, but it is safe to say that before the culling process is completed 45 per cent of all those drawn will either have been rejected on preliminary physical examination or discharged for physical weakness developed in the earlier days of training. Percentages are to many of us difficult to visualize. Let us say then that for every ten men drawn four and a half will be physically unfit. It may be objected that it is no more difficult to visualize a percentage than to visualize half a man. Those so troubled can say "four men and a pacifist" and let it go at that.

In peace times the regular Army rejects about seven out of eight men who try to enlist but no such rigorous standards are possible with our new national army.

The acceptance of the successful 55 per cent does not mean that the individuals concerned are well developed physically. It merely means that they present no readily discoverable

disability and are, therefore, presumably fit to stand the strain of the physical exercises necessary to prepare them to carry seventy pounds on their backs, mile after mile, and have fight left in them at the end.

Many of those rejected have defects that could be more or less readily corrected if there were time and means available. It is one of the most illogical defects of the present law that it fails to make suitable provision for the enlisting of men pending the correction of defects.

For the present, then, we have to accept the condition that nearly half of our theoretical man-power must be unavailable for military purposes. But this is not all. Many of the effectives must be exempted for various reasons. After all deductions are made it is not an improbability that the net effectives obtained by the first two drafts will not be more than 35 per cent of the number originally drawn. No totals of the causes of disability are available at present but enough is known to justify the statement that the great majority of rejections are chargeable either to the direct, or collateral effects, of preventable causes.

So much for the present. Now what of the future? Those short-sighted persons who think that the end of this war will see the end of general military service in this country may just as well get ready to see the truth. Some form of universal military training is as certain to be established in this country as anything can be certain. The million or more men who will return to civil life in the prime of their active life as citizens will do so with greatly enlarged mental horizons, with heightened ideals of national duties and with very much stronger convictions as to the national policies they will support. Add to them the millions of those embraced in their family connections and you have a potential political army that will dominate the legislation of the coming years. A newspaper paragrapher has well warned the slackers that those they now watch as they march away are those they will be voting for during the next generation. Whatever else these men may stand for you can be sure of one thing—they will stand for some form of universal military training or universal military service.

Within the past few days a questionnaire inviting expressions of opinion on the desirability of universal training after the war was circulated among the drafted men of certain organizations in a camp of men from the middle west; 8,900 replied in the affirmative and only 239 in the negative. Almost without exception the men based their opinions upon their observation of the improvement in their own physical condition during their few weeks of training. Let us, therefore, take thought in time that the youth of the nation be prepared for their coming responsibilities.

What do we know of the physical preparedness of those who will be called upon for service during the next ten years? Here again the figures are incomplete, but enough is known of the results of routine physical examinations of school boys in both our urban and rural schools to justify the

conclusion that a general examination would show that 40 per cent of the boys have defects sufficiently important to be noted by the examiners. Of course a very large number of the defects noted are of a minor character and a still larger number are of a character permitting a more or less easy correction; but unfortunately experience has shown that only a small fraction of the remedial defects are corrected, with the result that a large proportion of our school boys grow up to manhood with their physical efficiency impaired. The defects, indeed, are very largely of a character that as the years go by become increasingly potent causes of disability.

It is, therefore, inevitable that for the future as in the present not much over half of those who reach military age will be found fit for immediate training unless very radical steps are taken to give them proper preparation during the years from 12 to 19.

What are we going to do about it? The answer is that we must begin at the beginning and take the steps necessary to prepare our boys for the training which they will receive when the times comes to call them for service.

How is this to be done? It cannot be done unless effective steps are taken to give all the boys in the grammar schools and high schools a thorough physical examination, supplemented by provision for the correction of defects, training in personal hygiene and physical efficiency.

During the past year or so there has been a very active discussion of the propriety of introducing military training into the grammar schools and high schools and a great deal of opposition has developed to the idea of such introduction. The educational authorities as a class seem opposed to the introduction of military training in the grammar schools, and a great many oppose such training in the high schools. The opposition, aside from that of the pacifists, has been largely due to the feeling that the time for such training could not be spared from a curriculum already overburdened, and has been greatly strengthened by the fact that a good many prominent teachers of physical culture have taken the ground that military training is undesirable as a method of physical training for growing boys. At the same time most of those who have spoken and written in favor of military training in the schools have overemphasized the value of drill and military exercises generally in the physical development of boys. It seems to me that both sides have very largely overlooked the fact that the object we should seek is the preparation of youth for military training when the times comes for them to seriously undertake it, and not the anticipation of the more or less mechanical phases of military training involved in military drill. In my opinion the real advantage to be derived from beginning in the grammar schools to prepare for military training is that it will involve as a prerequisite to such training a careful examination of the physical status of all the pupils. It is, therefore, really more a question of the intelligent employment of public health officials than of the activities of the drill masters.

If conducted along the proper lines it will result in bringing before the examining officials at the time of enlistment an enormously larger proportion of effectives than present themselves at present. In other words, military training in its earliest stages should be really a preparation for military training, and by just as much as it is successful will the time necessary for intensive training after enlistment be reduced.

A large portion of the time spent on recruits is at present necessarily taken up by the preliminary physical exercises necessary to bring them into such condition as will permit them to stand the strain of active drill. From all accounts the English have found in training their first volunteer armies that even where arms were available it was useless to put them in the hands of the men until considerable time had been spent in the development and hardening process. Of course it is not expected that we will be able to bring our boys to the period of enrollment in such shape that the preliminary stages of their military training can be entirely omitted, but if we begin at the beginning and carry out a proper system of training, checked as to its results by periodically repeated physical examinations, we can certainly both increase the available material and reduce the time now necessarily devoted to the hardening process. It seems to be manifest, therefore, that universal military training will be very wasteful of our human raw material unless the general public is made to understand that the time has come when the medical and sanitary supervision of school children by some combination of state and national agencies is an absolutely fundamental requirement for the development of any satisfactory system of national defense. Of course it is evident that if we could obtain even an approximation to the sort of supervision I have suggested we would enormously promote the general physical well being of rising generations, and in that way would not only increase our military effectiveness but enormously increase our social and economic efficiency. The direct financial savings that would result from such a system are very great; the indirect economic gains are almost incalculable. To mention only one source of saving it is sufficient to call attention to the well-known fact that fully 20 per cent of the money we spend on schools, one dollar out of every five, is wasted because of the retardation of pupils by reason of physical defects. The suggested system of nation-wide medical supervision of schools would insure the prevention of the greater portion of this waste. Again, the greatest obstacles in the way of the increased physical efficiency of citizens generally are the disabilities resulting from preventable disease, notably tuberculosis, malaria, hookworm and the like. Dr. Hastings of Toronto, one of the best informed of our public health officials, estimates that the total casualties in all countries during the first two and a quarter years of the war have been approximately 4,000,000 and that the average annual total of preventable deaths in the same countries before the war was 4,600,000. In other words the normal

total of preventable deaths during the first two and a quarter years of the war would have been more than three times the number of deaths occurring in the war.

The kind of preparation for military training which I have suggested would certainly have very largely prevented such a state of affairs.

The immediate object of military training is the defense of the country against visible enemies. The preparation for military training will result in safeguarding us against not only visible, but invisible enemies as well. Putting aside the mental and moral advantages derived from universal training: the order, self control, concentration of purpose; the broadened sense of national responsibility; the deepened sense of human fellowship, and counting only the gain to the national life that will flow from improved physical efficiency, it is manifest that in universal military training when properly prepared and properly conducted throughout all its stages, we will find the most potent influence imaginable for securing physical preparedness for our duties as soldiers, as citizens and as men.

◆

Industrial Efficiency.—Lee shows curves of output for muscular work attention, monotonous work and night work, in each of which the practice effect and fatigue effect are shown. In factory investigations the American committee, of which he is executive secretary, found instances of a type of output by the individual which showed a striking uniformity daily or weekly with the inference that the worker was not working to his full capacity. This "stereotyping" of output appeared to have complex causes such as the unthinking recognition that a certain amount is enough for a day's work, or the fear that piece rates would be cut, or that soon all available stock would be exhausted, etc. Lee especially emphasizes the point that longer hours do not necessarily mean a greater output. Particularly toward the close of long hour shifts the curve of output dropped remarkably until in the last forty minutes there was very little or absolutely no production. The physiology of industry tells us to introduce recess periods into long spells, to omit Sunday labor, to impose overtime only in rare emergencies, to alternate night shifts with day shifts, that each worker has a rhythm of his own of such character that the greatest output in a plant is gotten by eliminating the faster and the slower individuals, and then adjusting the speed of operation to the common rate.—Frederic S. Lee, *U. S. P. H. Reports*, Reprint No. 448, 1918.

*

The Need for Sickness Statistics in War Industries and How to Get Them.—The minimum requirements for useful statistics of morbidity should include (1) exposure, in years or in months, of the workers who should be classifiable according to age, sex and occupation; (2) cases of sickness (at least those causing disability), including (a) sex, age and occupation, and (b) cause of sickness with time of onset, length of disability, and nature of termination. The idea is practicable since a large number of establishments already keep a record of sickness, there is very evident willingness on the part of both employers and labor organizations to coöperate with public health agencies, and it is believed practicable to use the facilities thus already at hand with some central supervising authority to collect the statistics. Such a record of sickness for industries would be of great service at the present time as well as affording a foundation for later development.—B. S. Warren and E. Sydenstricker, *U. S. P. H. Reports*, Reprint No. 452, 1918.

Editorial Section

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THE POLITICAL ATTACK ON THE NEW YORK CITY HEALTH DEPARTMENT.

In April, Mayor Hylan of New York City started gunning for the heads of a number of the nine bureaus of the City Health Department. In the interest of economy, he said, he was after the scalps of "high-priced experts." The New York law prohibits the arbitrary removal of bureau chiefs, but the Mayor and his friends had discovered that seven* of the nine bureaus had been illegally instituted, only two being authorized by the city charter. This, in spite of the fact that previous Corporation Counsels had declared the present organization quite legal!

Hylan soon found that he had stirred up a hornets' nest. Letters of protest poured in from all parts of the country, but what counted more, New York City itself was thoroughly aroused. The Committee on Public Health of the New York Academy of Medicine became very active in the defense of the Health Department. Further, about fifty social agencies held a conference and appointed a Committee of Twenty-one with Dr. Lee K. Frankel as chairman, to wait upon the Mayor. The Mayor refused them an interview.

Seeing that the public was behind the Health Department, and that the people would not submit to its disorganization without a great struggle, the Tammany chief cut down his desire for scalps from seven to two—namely those of Dr. C. F. Boldman, director of Public Health Education, and Lucius P. Brown, director of the Foods and Drugs Bureau. Further, by way of "drawing a herring across the trail" so as to confuse issues, says the *New York Times*, he introduced charges

*General Administration, Preventable Diseases Laboratories, Child Hygiene, Food and Drugs, Public Health Education and Hospitals.

of graft; but this bit of strategy fooled no one, coming, as it did, by way of afterthought.

The Commissioner of Health, J. Lewis Amster, M. D., the Mayor's own appointee, resigned, and Dr. Royal S. Copeland was promptly appointed to succeed him. Mr. Brown has kindly been relieved of his office by the Mayor, so as to give Mr. Brown his full time and energies to preparing his defense before the Civil Service Commission.

The final outcome of the investigation ordered by Mayor Hylan is problematical at the time of this writing. The Civil Service Commission is holding public hearings at which the labor organizations and civic bodies represented in the Committee of Twenty-one have appeared and presented their protests.

Whatever the outcome may be it is already evident that the publicity and notoriety given to the Health Department by the Mayor's letter is already bearing fruit. The Department shows signs of disorganization. The efficient personnel which has been built up in recent years is in danger of disruption. The experts in the Department, uncertain of the tenure of their offices, will prefer to look for other positions which guarantee greater permanency. It will be difficult to find men trained in health work to consider service in the New York Health Department by reason of the unenviable notoriety which attaches to these offices.

In his letter, Mayor Hylan directed the Civil Service Commission to make a complete and thorough investigation of the Health Department with a view to correcting every existing evil, removing from the payroll the names of all persons found illegally employed and reducing to their proper status all persons who are enjoying the emoluments of grades higher than those for which they took promotion tests. The President of the Civil Service Commission, in giving out an extract from the Mayor's letter, added a statement in which he said: "The Health Department for several years past has without doubt been a most belligerent violator of the Civil Service Law. New bureaus have been created and high salaries paid without authority of law." The Committee of Twenty-one requested the Mayor to place in their hands copies of the opinions of the Corporation Counsel bearing upon the legality of the appointments in the Health Department. It is well known, however, that former commissioners in making appointments to positions in the respective bureaus, did so under full sanction of the Corporation Counsel. That the legality of such action should be questioned at the present time is deplorable.

If the Overman bill is passed by Congress, creating a Public Health Administrator, comparable to the Food Administrator it is possible that the Federal Government will intervene—a consummation devoutly to be wished.

A. W. H.

AN IMPERATIVE APPEAL FOR MEDICAL OFFICERS.

An urgent and imperative appeal has just been issued by the Surgeon-General of the United States Army, for doctors for the Medical Reserve Corps.

There are today, 15,174 officers of the Medical Reserve Corps on active duty and the Medical Department has reached the limit of medical officers at the present time available for assignment. With these facts before the medical profession of this country, we believe that every practising physician, who is physically qualified for service between the age of 21 and 55 years, will come forward now and apply for a commission in the Medical Reserve Corps.

The Surgeon-General says: "So far the United States has been involved only in the preparatory phase of this war. We are now about to enter upon the active or fighting phase, which will make enormous demands upon the resources of the country." The conservation of these resources, especially that of man-power, depends entirely upon an adequate medical service.

Drafts of men will continually follow drafts, each of which will require its proportionate number of medical officers and there are at this time, on the available list of the Medical Reserve Corps, an insufficient number to meet the demands of these drafts.

The real necessity for the complete mobilization of the entire profession is imperative. It is not a question of a few hundred men volunteering for service, but of the mobilization of the profession for the conservation of the resources of this country. Let every doctor who reads this editorial and appeal from the Surgeon-General, which appeal is based upon dire necessity, act promptly and present his application for a commission in the Medical Reserve Corps at the nearest Medical Examining Board.

J. M., Jr.

PLUMS FOR THE FAITHFUL.

A bill was recently introduced into the Rhode Island General Assembly which would have met the full approval of "deserving" political workers. It was proposed to have a State Board of Health of three members, the president of which was to receive an annual salary of five thousand dollars, and the other members, four thousand each. The Board was to meet once each month or oftener "if deemed necessary," traveling expenses being paid by the State.

The Executive Secretary of the Board was to receive *three thousand dollars* per year, and was to be subject to removal at any regular meeting by a majority vote of the Board.

A total of eleven thousand dollars for the part-time, presumably inexpert, Board members and three thousand for the really vital unit of efficient health administration—the executive!

Could human ingenuity devise a more delightful haven for politicians than a berth on this Board! Likewise, could efficiency in health work possibly receive a prettier knock-out!

Fortunately, it seems that the bill will be defeated.

A. W. H.

THE PAPERS OF THE NEXT ANNUAL MEETING.

A well-informed member of the Association lately expressed high approval of the programs read at the Washington meetings in 1917. General addresses giving nothing new were to a large extent absent, being replaced by real contributions to public health science.

It is a pleasure to transmit this compliment to section program committees and to hope that it may be repeated after the coming Chicago meetings.

Let us have shorter and better programs.

A. W. H.

Association News.

By A. W. Hedrich, Secretary

The American Public Health Association Incoporates.—On April 27 steps were taken to incorporate the American Public Health Association under the laws of Massachusetts as an association not organized for profit. The following persons, residents of the State of Massachusetts, with but one exception, acted as incorporators: Professor W. T. Sedgwick, a former president of the Association; Professor G. C. Whipple, of Harvard University; Dr. E. R. Kelley, commissioner of health of Massachusetts; Dr. Francis R. Slack, a former secretary of the Association; Mr. C. E. Turner, public health agent of the Massachusetts Medical Society; Captain A. N. Thomson, M. R. C.; and A. W. Hedrich, secretary of the Association.

The present officers and directors of the Association will become the officers and directors of the new corporation.

✠

A Standard Plumbing Code.—The desirability of forming a standard plumbing code has long been evident. To this end, steps have been taken to appoint a joint committee from the National Municipal League, the American Society of Sanitary Engineers, and the Sanitary Engineering and Public Health Administration Sections of the American Public Health Association. The organization of the committee is now in the hands of Mr. Thomas H. Claffey, secretary of the Society of Sanitary Engineers.

A standard code originating from such a committee would immediately have standing and would fill a great need.

✠

Board of Directors to Meet in Chicago.—The Board of Directors of the American Public Health Association will meet in Chicago on Thursday, June 13, at 2 p. m., at the Morrison Hotel, 79 Madison Street, Chicago. The meeting date is very convenient since it comes at the time of the convention of the American Medical Association, which meets in Chicago, June 10–14, 1918.

A number of very important projects will be considered by the Board of Directors, such as the organization of state health societies, a campaign to increase the membership of the Association to at least 5,000, the work of the proposed new Health Institute of the Association, and plans for the coming annual meeting to be held in Chicago, October 14–17, 1918.

The Association has lately begun to become self-supporting; in fact, if present tendencies continue there will be income for propaganda purposes. The Board of Directors will, therefore, be able to consider certain very necessary activities which for years have been held in abeyance for lack of funds.

HELP WANTED.

In order to help relieve the shortage of sanitarians due to the war, free help wanted announcements will be carried in this column until further notice. Copy goes to the printer on the first of each month.

In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Wanted: Sanitary engineer in southern state. Salary, $2,400. Adress No. 119, D. O., care of this Journal.

Wanted: Epidemiologist as assistant to the Director of Division of Communicable Diseases. Must be a physician and by Civil Service regulations must comply with Ohio laws for medical licensure. Salary, $1,700, with necessary traveling expenses. Address No. 120, F. W. A., care of this Journal.

Wanted: Physicians in southern state board of health to conduct intensive health work in rural districts. Should be young, energetic, have a pleasing personality and a graduate of Class A medical college. Salary, $2,100, with traveling expenses. Address No. 122, C. W. P., care of this Journal.

Wanted: Trained nurse experienced in public health nursing and tuberculosis work in New York State. The work is among the people of the county and a Ford car is provided. Salary, $1,200. Address No. 123, S. P. M., care of this Journal.

Wanted: Sanitary engineer to work along lines of sanitation among Jewish farmers in New York State. Work temporary, lasting through the summer. A man who can speak and understand Yiddish preferred. Salary commensurate with qualifications and duties of the position. Address No. 125, D. G., care of this JOURNAL.

Wanted: Sanitary engineers for extra cantonment zones familiar with the control of malaria. Also sanitary bacteriologists wanted. Address No. 126, B. R., care of this JOURNAL.

Wanted: Lady laboratory official thoroughly posted in food, water, blood, and general diagnostic laboratory work, in western state. Salary, $1,200. Address No. 128, F. M., care of this JOURNAL.

Wanted: Camp sanitarian in West Virginia. Salary to start, $200 per month, with increases as long as his work is satisfactory. Four-room cottage and board furnished. Address No. 129, W. A. J., care of this JOURNAL.

Wanted: Young medical man with some experience in hospital and public health work as assistant superintendent of hospital in Ohio. Salary to start, $2,000, increase if satisfactory. Address No. 130, B. F. O., care of this JOURNAL.

Wanted: Health officer in Middle West. Must be qualified and experienced to have management of 100-bed hospital, tuberculosis hospital, and a contagious hospital. Salary to start, $3,000, with increase. Address No. 131, P. G. C., care of this JOURNAL.

Wanted: In Illinois, bacteriologist experienced in the water purification field, especially having knowledge of ozone. Address No. 132, M. W. P., care of this JOURNAL.

Wanted: Nurse to have charge of baby-house in New York State. Work includes care for a census of between twenty and twenty-five babies under two years of age and direction of training school for children's nurse maids. Salary, $60 per month and maintenance, including laundry work. Address No. 134, H. J. H., care of this JOURNAL.

Wanted: Sanitary engineer for southern state board of health. One familiar with the peculiarities of southern soil preferred. Salary, $2,400. Address No. 119, D. O., care of this JOURNAL.

PERSONAL NOTES.

Mr. Horatio N. Parker, who until recently has been associated with the Health Department of *The Delineator*, is departing for Jacksonville, Fla., where he will become city bacteriologist.

Dr. Charles T. Nesbit, formerly of Wilmington, N. C., has been appointed health officer of Akron, Ohio.

Dr. R. W. E. Cole leaves the Department of Health at Akron, Ohio, in order to become epidemiologist to the State Board of Health at Charleston, W. Va.

James Zetek, professor of biology and hygiene at the Instituto Nacional of Panama, has been appointed entomologist, Board of Health Laboratory, Ancon Hospital, Canal Zone.

Dr. Irving A. Watson, a former president of the American Public Health Association, died during the past month at Concord, N. H. Dr. Watson has for many years been the secretary of the State Board of Health of New Hampshire.

Dr. W. H. Coon has resigned the health officership at Kansas City, Mo., and may be temporarily addressed at Lowell, Mass.

Dr. B. Franklin Royer is acting state health commissioner for Pennsylvania owing to the death of Dr. Samuel Dixon.

Wallace T. Eakins, epidemiologist for the New Jersey State Department of Health, has been granted a leave of absence for the period of the war and has been commissioned as 1st lieutenant in the Sanitary Corps, Camp Greenleaf, Georgia.

L. M. Fisher, formerly with the State Health Department, Harrisburg, Pa., is now sanitary engineer, United States Public Health Service, Washington, D. C.

J. H. O'Neill, formerly sanitary engineer for the Louisiana State Board of Health, has been commissioned as captain in the National Army.

W. L. Stevenson of the Department of Public Works of Philadelphia, has been appointed sanitary engineer in the Department of Health and Sanitation, United States Shipping Board, Washington, D. C.

Dr. Ralph H. Hunt of East Orange, N. J., has received the commission of major and has been assigned to Regimental Infirmary, Camp MacArthur, Waco, Tex.

Fred M. Meader, M. D., of Albany, N. Y., has been commissioned as captain in the Medical Reserve Corps and is stationed at U. S. Base Hospital No. 33, A. E. F.

Martin Dupray, formerly of Akron, Ohio, is with the State Department of Health, Springfield, Ill.

C. A. Haskins of the Kansas State Board of Health has been commissioned as captain and has been assigned to Camp Sherman, Chillicothe, Ohio.

Joel A. Sperry of Urbana, Ill., has been commissioned as 1st lieutenant, Sanitary Corps, N. A.

A. M. Besemer, formerly instructor in bacteriology at Cornell University, has accepted the position of research chemist and bacteriologist for the California Central Creameries, Eureka, Cal.

Dr. E. A. Schlageter of Chicago has been made a 1st lieutenant, M. R. C., and is stationed at Fort Sill, Okla.

William Bradford Buck of Sea View Farms, West New Brighton, N. Y., has left for France and is stationed with the American Red Cross, 4 Place de la Concord, Paris.

Henry Chalmers, formerly of the State Department of Health, Albany, N. Y., is with the United States Tariff Commission, Washington, D. C.

Robert H. Brown of New York City has been commissioned as captain in the Sanitary Corps, N. A., and assigned to the office of the surgeon-general, U. S. A., Washington, D. C.

Dr. C. P. Fryer of Jacksonville, Fla., has been appointed full-time health officer of Pitt County, North Carolina.

*

The following applicants were elected to membership in April, 1918:

Confederation Life Ass'n, Toronto, Ont. (Corporate Member.)

North American Life Assurance Co., Toronto, Ont. (Corporate Member.)

Union Central Life Insurance Co., Cincinnati, Ohio. (Corporate Member.)

Canada Life Assurance Co., Toronto, Ont. (Corporate Member.)

M. E. Barnes, M. D., Chiengmai, Siam, Director, Uncinariasis Campaign.

Gladys E. Vaughan, M. A., Minneapolis, Minn., Bacteriologist, State Board of Health.

Granville R. Boyd, Coateville, Pa., Health Officer.

H. M. Hicks, M. D., Amsterdam, N. Y., Health Officer.

Grace Ross, R. N., Detroit, Mich., chief, Nursing Division, Board of Health.

Caleb M. Saville, Hartford, Conn., Hydraulic Engineer, Hartford Water Works.

Corporation of Glasgow, Public Health Department, Glasgow, Scotland.

A. W. McClave, M. D., Chicago, Ill., Medical Director, National Life Insurance Co. of U. S. A.

Joseph F. Kelsey, 518 Platt St., Toledo, Ohio, Director, Division of Health.

C. E. Gibbs, M. D., Spartanburg, S. C., U. S. Public Health Service.

Books and Reports Reviewed.

The Human Mechanism. *Theodore Hough and W. T. Sedgwick. Boston: Ginn and Company. Second Edition. 1918. Pp. 572. Price, $2.00.*

The first edition of this work appeared in 1906. The fact that its usefulness had scarcely declined with the passing of so long a period is evidence of the foresight and discretion of the writers. The tone was so moderate and the material so sound that little or nothing has required "taking back." Nevertheless it is a great satisfaction to have the new edition and to note some of its valuable features. The revision has been painstaking and is not limited to a few sections.

Many physiological matters which have hardly ever figured in books of this size and grade have been given place here. This does not mean that Doctor Hough is disposed to cite mere curiosities for their own sake; it is rather because his rare judgment has enabled him to see the suggestiveness and the practical applications of many an observation easily set aside as academic. He has recognized the significance of "conditioned reflexes" as few seem to have done. There is an admirable diagram designed to help the layman to compare the molecular patterns of starch and protein. The interesting studies of Hertz on the reactions of the colon are utilized.

In the opinion of the reviewer the exposition of the phenomena of congestion, inflammation, and tissue resistance is the best extant. The discussion of thermal regulation probably deserves the same distinction. In the chapters which deal with communicable diseases new facts are given respecting transmission by insects. It is to be regretted that the vital statistics have not been revised to show the progress achieved in recent years; this, however, is a solitary blemish in a work abounding in excellences.

Percy G. Stiles, Ph. D.

✱

Fresh Water Biology. *Henry B. Ward, Ph. D., and George C. Whipple. New York, N. Y.: John Wiley & Sons, 1918. Pp. 1111. (Illustrated.) Price, $6.00.*

The appearance of this carefully prepared and well illustrated monograph on North American fresh water organisms marks the first attempt to deal with fresh water life of this continent in its entirety. For students engaged in the study of these organisms in the realm of pure science and to sanitarians making microscopical examination of water, this book will become a deeply appreciated and indispensable manual.

The work has been in preparation for several years and involves contributions of a large corps of collaborators, each chapter being written by a specialist on the group of organisms therein discussed. Special chapters are devoted to a discussion of general biological factors, methods of collecting and photographing, and technical and sanitary problems. The remaining chapters in general follow a definite plan, each being devoted to a single group of organisms. A brief description of the anatomy of the forms is followed by the life history in condensed form and a discussion of their biological relations. There is a synoptic key at the close of each chapter for the identification of species or genera. These keys are carefully prepared and easy to use. Numerous illustrations accompany the description of species. A brief and carefully selected list of essential references follows each chapter. The index is complete with important terms and scientific names used in the text and keys.

C. E. Turner, M. A.

Housing Problems in America. *Presiding of the Sixth National Conference on Housing, Chicago, October, 1917. Published by National Housing Association, New York City. 462 pp.*

Perhaps no feature of the present war-complicated labor problem is more pressing than the emergency housing of vast forces of men newly gathered together. The National Housing Association realized this a year ago and gathered experts from all over the country to discuss housing as a war problem. This series of papers describe how the housing problem has been met abroad and how individual corporations have dealt with their own war-produced housing famines here.

Beside these papers there are perhaps a dozen more relating to more general housing topics, including a discussion of the time-honored question as to which city department shall enforce housing laws. Another section is devoted to Chicago's housing problems.

To read all these papers consecutively gives one a curious picture of how anyone's personal interests affect his judgment of any problem. The varied viewpoints expressed in this book, city planners, architects, social workers, engineers, camp superintendents, health agents, doctors, and clergymen, are striking in their many conflicts. Even more striking is the entire omission of any representation of the people for whom the houses are supposedly to be built.

Eunice Burton Armstrong.

✱

Household Management. *Florence Nesbitt. New York: Russell Sage Foundation Co., 1918. 172 pp. Price, .75 cents.*

Recent investigations of actual food-conserving in the home show that the rich are saving a little, the middle class more in proportion, but that the great mass are saving, in the sense of conserving, not at all.

In these times of high prices there is a tremendous amount of malnutrition, not only in the lowest-income homes but quite as often in those families whose income would suffice to provide proper food, were it intelligently expended. The coöperation of the great majority of its citizens is needed by this country in its food-saving work. The Russell Sage Foundation's second volume in its new Social Work

Series, Household Management, by Miss Florence Nesbitt is planned to teach those very citizens how to get the most food for their money. Any one, doctor, nurse, insurance agent, Red Cross Home Service worker, or any other "social worker" will undoubtedly be grateful for this little book. The five tables which it contains make the book exceedingly valuable. They are given in simple, direct, practical English. Copies might be handed directly to an almost illiterate housewife. The use of the word "ounces" rather than "tablespoonfuls" is perhaps unfortunate but with this exception these simple rules are admirably suited to form a basis for lucid explanation of the best household management.

Miss Nesbitt says that "whatever is necessary for the health,—physical and mental.—of the family, and for the unity of its life, is essential to successful home-making, while things not necessary for these purposes, however desirable, are unessential. These five tables of simple rules for successful home-making concern regulating the diet; food, from the standpoint of nutrition, and economy; necessary cooking operations; standards of household equipment; and suggestions for a talk on milk.

The book abounds in concrete illustrations and also contains a discussion of the different dietaries of various nationalities. The difficulty of approach for the average social worker who is young, unmarried and childless is emphasized, since women of the poorer class distrust advice not founded on personal experience, and the wisdom of using health needs as the entering wedge is pointed out. Miss Nesbitt reminds the enthusiastic social worker of the danger of superimposing alien standards and says the mother has very likely never connected her children's ill health with the way in which they have been housed, fed and cared for. She must be led to make this connection.

Beside the usual details of food-content, excellent suggestions regarding housing and clothing are given. The mistakes of judgment which an outsider can make through failing really to understand the difficulties which must be met are clearly shown.

Such a book as this is as valuable as would be a series of conversations on various aspects of her experience and her work with such an expert as Miss Nesbitt.

Eunice Burton Armstrong.

✱

How to Keep Fit in Camp and Trench. *Colonel Charles Lynch, M. C., U. S. Army, and Major James G. Cumming, M. O. R. C., U. S. Army. Philadelphia: P. Blakiston's Son & Co., 1918. Price, 30 cents.*

This little book of some seventy pages was written to provide the enlisted men with information in succinct form, at present only obtainable in larger text books covering military sanitation. The small size of the book means that most of the non-essentials have been eliminated. The subject matter is presented in a style approaching the conversational. There is much detailed new material which is of interest to the medical officer as well as the enlisted man.

Perhaps the overemphasis laid upon such matters as the relation between typhoid, dysentery, and cholera organisms and dust may be explained by the type of reader for whom the book was intended, and the necessity of dwelling upon the dust menace. No mention, however, is made of dust *per se* as a menace to health.

An introductory chapter treats of disease organisms and the avenues by which they pass from person to person.

The first two chapters, on Camps at Home, discuss such topics as shelter, water, wastes, personal hygiene, insect pests, etc. The third chapter discusses in three pages those things of sanitary interest to the soldier travelling by rail or sea. The fourth chapter, on Camps and Quarters Abroad, presents much in detail that is new. The chapter closes with a brief discussion of some of the trench diseases. The last chapter treats in a little over a page of first aid.

There are but few typographical errors. On the whole, the work should serve a distinctly useful purpose in the field for which it was intended.

J. P. Bill, M. D.

Stories from the Day's Work.

THE JUDGE'S CONVERSION.

When I became Chief Health Officer of Richmond, in July, 1906, there was so little in the way of a health department that I had the job of building up an entirely new organization. As soon as I had had time to study the situation and see along what lines the greatest good could be accomplished by the least outlay, I recommended to the City Council, through the Board of Health, the adoption of an ordinance creating the positions of Medical Inspector, Registrar of Vital Statistics and stenographer.

In spite of the fact that salaries of these three positions amounted to only $3,300 a year, I knew I would have great difficulty in getting this ordinance adopted, as we had in the City Council a number of men who had no conception of the real work of a modern municipal health department and who regarded as sheer waste of the city's funds every dollar appropriated for health work.

I especially feared the vote and influence of the president of the Board of Aldermen, Judge Turpin, then Mr. Turpin. I knew that he looked on all health work as a mere fad and he had the reputation of never changing his mind. He also had the name of the watch dog of the treasury.

I therefore decided to take the bull by the horns and go to see Judge Turpin. He met me with the salutation: "If you have come to see me about that health ordinance you might as well save your breath. I am going to do all I can to beat it. All this health business is damn nonsense and Richmond hasn't got the money to spend that way."

All that I could say in reply was listened to with ill-concealed impatience. "No," he went on, "you can count on my getting out of the chair and opposing this ordinance from the floor."

It was plain that all ordinary means of persuasion were useless. Hence, in spite of having a very slight acquaintance with Judge Turpin, I boldly replied: "No, you are not going to speak against that ordinance; you are not even going to vote against it. As a matter of fact you are not only going to vote *for* it but you are going to champion it from the floor. I can see you now singing, 'He took my feet out de miry clay!' "*

Confidently as I had spoken, I was actually very doubtful. I realized that, at best, I had quite a job ahead of me, so I tackled it in stages. When I next saw Judge Turpin I got him to agree that he would at least not actively oppose the ordinance, though he still insisted he would vote against it in spite of all I could say. A week later I got him just a bit wobbly as to how he would vote. This was not enough. I needed several more votes than were in sight and I felt that there was no way of landing these unless I could get the president's active support from the floor.

One week before the momentous night when the ordinance was to come up in the Board of Aldermen, I took Judge Turpin a copy of Seaman's "The Real Triumph of Japan" and got him to consent to read it. I was sure he would be deeply impressed by Seaman's statement that in the war between Japan and Russia only one Japanese soldier had died of disease to every four killed, thus reversing the record of all previous wars, with four deaths from disease to every one from bullets. This result had been secured by the health work of the Japs.

Only one thing more remained to be done. On the last morning before the meeting of the Board of Aldermen I addressed the following short note to Judge Turpin and assured myself that he received and read it:

"*Dear Judge Turpin*:

"I am not going to take up much of your time. I want to ask you just three questions:

"(1) Do you not believe that American public health men are as capable as Japanese army surgeons?

"(2) Do you not believe that the lives of Richmond citizens are as well worth saving as are the lives of Japanese soldiers?

* Not so many years ago, as all Southerners remember, when darkies "got 'ligion" they went out on the street and, stopping every passerby who would stay to listen, they stood shaking his hand and telling of their conversion from sin to salvation. Chief place was given to an ecstatic account beginning: "He took my feet out de miry clay and sot 'em on de firm rock o' ages, whar de win' may blow and de storm may rise, etc."

"(3) If you answer these questions in the affirmative, will you not give your *active support* to the health ordinance which comes up tonight before the Board of Aldermen for concurrence?

"Very respectfully,

(Signed) "E. C. Levy, M. D.,

"*Chief Health Officer.*"

It was well on to midnight when the Clerk droned: "An Ordinance to Amend and Re-ordain an Ordinance Approved June 18, 1906, entitled 'An Ordinance Creating a Board of Health, Defining Their Powers and Duties, etc., etc.,'" and I knew the time had come for a showdown.

As the clerk finished reading, Judge Turpin took the floor. I knew I had won, but it was another instant before I knew how complete was my victory and how perfect my prophecy, for I then heard Judge Turpin address the chair:

"Mr. Chairman:

'While the lamp holds out to burn,
'The vilest sinner may return.'"

I knew that Judge Turpin's conversion was complete. He carried with him another member who had sworn he would vote against the ordinance, and it passed with not a single vote to spare.

*

CALLING AN ANTIVACCINATIONIST'S BLUFF

In a neighboring city not far from Chicago there reside a considerable number of antivaccinationists. Some years ago smallpox came along to remind them of their folly and neglect. The health officer in this town knew what was needed and proceeded to vaccinate school children, factory employees and citizens in general.

The antivaccinationists called a meeting to protest against this action. They met in the city council chamber. The prominent citizen, a few lawyers, a doctor or two, and many women were present. The health officer had sent for me to come out and do some talking.

The meeting was called to order and the object of assembly stated. Speeches protesting against vaccination were made and then I was invited to speak. I told them many things I thought they needed to know. One of the things I told them was that a person vaccinated and revaccinated would not contract smallpox.

At this statement a man in the audience rose up and said that an exposed person would not necessarily get smallpox even if he were not vaccinated. He said that he had never been vaccinated, had spent an evening in a room with a smallpox patient, and did not contract the disease. He said that vaccination did not protect from smallpox anyway. His sympathetic audience thought I would not be able to explain away such an experience. I replied to him that occasionally a man might be immune from smallpox, but that the chances of an unvaccinated man escaping from smallpox after an evening's exposure to the disease were so slight that I would have to inquire into the matter a little farther. I did not doubt his word, but feared he was mistaken about some things.

I took a ten dollar bill out of my pocket and held it up where all could see it. I then said: "Assuming what you have said to be true, *i. e.*, that you were in the same room with a case of smallpox during an evening and that you did not contract smallpox, I will bet ten dollars that you had been vaccinated." He again denied that he had been vaccinated. The crowd howled and assumed that I had lost, but I stuck to the man and told him he would have to show his arm before I could be convinced. I insisted that he show his arm and so got part of the crowd with me. When he saw he was cornered and would have to strip, he stated he had been vaccinated, had nearly lost his arm and had a scar as large as a half dollar. After that, the crowd did not have much to say.

The average antivaccinationist does not hesitate about lying when he attempts to bolster up his views upon vaccination. The man had deliberately lied and I was determined the audience should know it. I ran but little risk of losing the ten dollars though I had to take his word for what had happened at the time he was exposed.

The newspapers next morning gave him the worst of it. Did that audience learn anything? Some did, but the antivaccinationists that went there were antivaccinationists when they came away. Probably they still are.

Heman Spalding, M. D.,
Chief, Bureau of Medical Inspection,
Department of Health, Chicago.

CHANGING MISUNDERSTANDING INTO COÖPERATION.

The newly organized State Health Department of Maine decided, in June, 1917, to institute sanitary inspection of hotels.

The hotel men were unfavorable to inspection. They had visions of costly reconstructions, new plumbing and ventilation apparatus, and special bed linen. They fancied themselves "bossed around" by an impractical inspector, who would advertise their shortcomings to the world.

As the Maine Hotel Association had three times defeated bills for state hotel inspection, it was clearly necessary for us to dissolve this antagonism. Accordingly we had a conference with the officer of the Association and demonstrated that, far from being a menace, hotel inspection was really a great benefit to the hotel owners. The State Health Department proposed to prevent epidemics which hurt business; to furnish expert advice for overcoming sanitary difficulties in the least expensive manner; and to give Maine a reputation for safe and attractive hotels from the health standpoint, so that more visitors would come to Maine than ever before.

When he understood our aims, the president of the Maine Hotel Association offered every possible assistance. The secretary of the Association even sent out a circular letter urging the coöperation of all hotel owners, and at the annual meeting of this Association, a set of rules and regulations presented by the State Department of Health were unanimously endorsed. These rules are now a part of the public health law of the state.

These hotel men, who formerly blocked all attempts at hotel inspection, are now loyal friends to the State Health Department, and may be depended upon for enthusiastic coöperation.

The incident suggests that many of the difficulties which clog the wheels of public health progress arise from the lack of mutual understanding, rather than from obstinacy.

C. E. Turner, M. A.,
Formerly Special Field Agent of the Maine State Department of Health.

—OR MUST WE USE MALLETS?

This is a story of how we ourselves were brought to see the light.

It has been the aim of our department for some time past, to distribute typhoid vaccine. Upon request, we also administer it. This offer was repeatedly made to physicians by letter and otherwise, and to the public through the newspapers in free and paid space, the Department "Bulletin," the "movies," by word of mouth and otherwise. When a case of typhoid is reported, every member of the family excepting the patient is specially urged to take the treatment.

Last summer a case of typhoid was reported in a boy of a poor family. The case was visited and the mother urged to take the typhoid vaccine, but the usual excuses were advanced by her. However, we were able to induce her to change her mind, and together with three children she was given the vaccine by us, because the attending physician was too busy.

When the third dose was administered, and her fears of intense pain, swollen arms, illness and many other imaginary pains had been allayed, the mother wanted to know why people objected to taking the vaccine and why she had not been informed before of the existence of a material that would have prevented a doctor-bill and drug-bill, aside from the danger of losing a child, and the worry connected thereto. We assured her that every physician knew about it, that it had repeatedly been spoken of in the daily newspapers, and that she and her children undoubtedly had seen information concerning it in the movies. However, the fact remained that she did not know of it and in consequence had been made to suffer.

We have, therefore, come to the conclusion that there remains but one way in which to get health information to the general public, and that is through visits to the homes by nurses who are trained in the art of handling people, and who can spread the gospel of good health and tell what the health department has to offer.

Max J. Colton,
Health Officer,
Cumberland, Md.

Public Health Notes.

Abstracts by M. E. Champion, M. D., David Greenberg, and M. P. Horowitz.

Whooping-Cough Vaccine.—Vander Bogert, writing in the *American Journal of Diseases of Children* for April, tells of his experience with vaccine in the prevention of whooping-cough. A child in the Children's Home in Schenectady, N. Y., exposed forty-five other inmates to whooping-cough for a period of one week. The diagnosis was based on the whoop, vomiting with the cough, a lymphocytosis of 61 per cent, and a smear from the pharynx showing organisms reported suspicious of the Bordet-Gengou type.

Of the forty-five children exposed, thirty-one gave no record of having had the disease, though later one was found to have had a past infection. These thirty-one children were inoculated December 3, 1917, each with 50 million plain stock pertussis vaccine. No untoward effects were experienced. No cases had developed among those so treated, up to January 24, 1918. (*M. E. C.*)

*

Physical Education in the Secondary Schools.—In *Bulletin 50, No. 1917, of the Bureau of Education*, Department of the Interior, there appears the report of the Commission on the Reorganization of Secondary Education appointed by the National Education Association. The health program which is recommended may be divided into four groups:

1. A careful health examination which should include:

a. Medical inspection;

b. Mental examination to determine whether the pupil is normal, subnormal or supernormal;

c. Physical examination, which includes the tests for eyesight, hearing, weight, height, bodily strength, lung capacity, and cardiac efficiency.

2. A healthful environment in home and school. This must consider whether an adequate and wholesome diet is available, as also good sleeping and living rooms and properly maintained school rooms.

3. Instruction in health problems, including such subjects as diet, care of teeth, sex, sleep, exercise, bathing; room temperatures, ventilation, dust, seating, posture; sewage disposal, water supply, milk supply, and control of infectious diseases.

4. Physical activity:

a. Equipment, minimum requirement;

b. Amount and kind, minimum requirement;

c. Kind of exercise. (*M. P. H.*)

*

Physical Education in Public Schools.—The appalling amount of physical defects disclosed by the draft examinations has led the Massachusetts State Board of Education, backed by a large number of private organizations, to introduce a bill providing for more extensive physical education in the public schools. The bill provides for a director and two assistants (one a woman) appointed by the State Board of Education, who shall have general supervision of physical education and shall outline the work. Physical education is made to include games, athletics, instruction in personal hygiene and sanitation. Not less than two hours a week are to be devoted to this work.—*The Survey*, March 6, 1918. (*D. G.*)

*

Source of T. B. Infection.—The 1916 Annual Report of the chief tuberculosis officer for Birmingham, England, quoted by the Medical Officer, gives the results of an investigation into possible sources of infection of 2,744 new cases of tuberculosis. The percentages he gives are: from brothers 9.03; fathers 8.12; sisters 7.10; mothers 6.84; daughters 1.42; sons 1.09; wives 0.98; husbands 0.87. (*M. E. C.*)

*

The Draft and the Nation's Physical Stamina.—It has always been assumed that the people in the cities were healthier than their brethren in the country. Thus it was said that 1 per cent of the city children as against 3.7 per cent of country children were afflicted with lung trouble; 0.13 per cent of the former as against 3.5 per cent of the latter, for spinal curvature; twice as much mental defectiveness, five times as much ear trouble, four times as many eye defects, three times as many enlarged tonsils and adenoids, twenty times as much caries

of the teeth, and 8 per cent more malnutrition are attributed to the country children in comparison with the city children.

In the first draft, about 2,500,000 men were examined for service of which 71 per cent were accepted and 29 per cent rejected. An analysis of the figures in ten states, where there is not a large foreign element, showed that in the urban areas, 71.53 per cent were accepted and 28.47 per cent rejected, while in the rural areas, 72.04 per cent were accepted and 27.96 per cent were rejected. Assuming the more usual dividing line for urban vs. rural districts than had been assumed by the Provost Marshal General, Dr. E. N. Clopper found that in ten different states, 73.4 per cent of those examined from urban districts were accepted and 26.6 per cent rejected. Exactly the same percentages were found for the rural districts. Therefore the country boy is apparently just as healthy as the city boy. The manufacturing states of New England and the East made the worst showing in the physical examinations.

The article appears in *Child Labor Bulletin* for February, 1918. (*M. P. H.*)

*

Outdoor Sleeping Porches.—Because of inadequate sanitarium facilities the Municipal Tuberculosis Sanitarium has under consideration a plan to secure an outdoor sleeping porch for every consumptive in Chicago. According to this plan each church has agreed to provide warm bedding for at least one tubercular person of its congregation. Where necessary a sleeping porch will be equipped by the Sanitarium, complete with canvas curtains, cot and mattress. The Sanitarium will send a nurse to demonstrate the making of the approved "Klondike" bed for outdoor sleeping.—*Monthly Bulletin*, Chicago Mun. Tub. San., March, 1918. (*D. G.*)

*

Midwifery Increase in England.—The *Medical Officer* for March 9, 1918, gives a summary of the results obtained in the administration of the Midwives Act in Straffordshire, England, last year. During the year 297 women were practicing; they attended approximately 64 per cent of the total births in the county, representing 10,632 cases. Medical help was sent for in 1,291 of the cases presenting abnormal features. These figures show a progressive increase over the figures of other years, and, according to the local health officer of the county, admit of the inference that the midwives are benefiting by the instruction of the inspectors and are developing an increasing sense of responsibility. (*M. E. C.*)

*

The Social Unit Plan.—The National Social Unit Organization describes in its *Bulletin No. 4* the social unit plan adopted in the Mohawk-Brighton District of Cincinnati. The plan is to make people in cities more neighborly and more interested in each other's welfare, by organizing the social forces in a district. The experiment will be conducted for three years, and $135,000 has been appropriated for the work. It is hoped that by this plan health and happiness will be increased, whereas poverty, misery, disease and preventable deaths will be diminished. (*M. P. H.*)

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Feeding Garbage to Hogs.—The Canadian Commission of Conservation has issued a special report entitled "Garbage as Feed for Hogs." In this report, the Canadian and American experiences are reviewed. In Canada the general practice is to sterilize the garbage before feeding, by boiling. In America, the garbage is fed raw, but the hogs are immunized against hog cholera by serum and virus treatment. The experiences of Worcester, Mass., and Grand Rapids, Mich., are recorded in detail. Garbage is always collected in water-tight, covered steel wagons, and cleanliness in the hog pens is practiced. It is estimated that one ton of garbage will feed 45 hogs per day. Some attempts have also been made to raise cattle and sheep on garbage, but with varying success. (*M. P. H.*)

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The Problem of Our Infant Population.—Dr. H. E. F. Locke, writing in the *American Journal of Nursing*, April, 1918, emphasizes the need of welfare work in connection with the problem of infant mortality. Welfare work should not in any sense convey the idea of charity, but in its broadest sense means the teaching of people to become self-reliant and to do things better and more intelligently. That "a child must be born before it can be saved" is not strictly true. By proper prenatal instruction and observation of prospective mothers the number of stillbirths could easily be reduced

50 per cent. The time may come when the confidential registration of pregnancy at not later than the fifth month, with the district welfare bureau would be compulsory. What a wonderful means of combating infant mortality such a requirement would furnish! (*D. G.*)

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Induced Diagnostic Eruption in Measles.—Godlewski gives a colored plate of the findings when dry cupping is applied to the chest or back for thirty, forty or fifty seconds. On 200 healthy persons there was left a whitish ring where the cup had rested. When applied to a person during the incubation stage of measles, three days before the eruption appeared, a reddish ring was seen, the skin looking as if it were stippled with red in the form of a circle. If applied forty-eight hours before the eruption, the red circle is much wider and the color deeper; twelve hours before the eruption the red circle is still wider and the color veers more to purple. This induced erythema reaches its height in three and a half minutes and then subsides, lingering sometimes up to ten minutes. This test was applied to 218 persons and the eighteen giving a positive reaction developed a typical measles eruption four or five days afterward. The subjects included children and adults; in each case there was nothing to suggest measles at the time except this ring of induced erythema. The color deepens the closer to the date of the measles eruption. Godlewski relates that ten cases of what seemed to be measles developed in epidemic form in one barrack, but this cupping glass test was negative, and the assumption of measles was disproved by the course of the cases. He has had no opportunity to apply the test thoroughly in scarlet fever, but it was negative in the two cases tested. If time and experience confirm the reliability of this reddish crown induced by the cupping glass as a sign of incipient measles, it will prove useful in camps and institutions to weed out the cases of measles without waiting for the eruption.—*Jour. A. M. A.* From *Bulletin's de la Société Médicale des Hôpitaux, Paris, Nov. 23, 1917, 41, No. 32.* (*M. E. C.*)

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Malnutrition Among School Children.—The Bureau of Child Hygiene of the New York City Department of Health has just completed a survey of 171,619 school children, made for the sole purpose of determining the condition of nutrition of these children. Of the number examined 17.3 per cent were found in normal condition as regards nutrition, 61.1 per cent were passable or border-line cases, 18.5 per cent were seriously affected with malnutrition, and 3.1 per cent were in a bad stage of malnutrition. It is pointed out that this condition has been increasing in seriousness for the last year and a half and has resulted mainly from the fact that the increase in wages has not kept pace with the decrease in the buying power of the dollar for food. The condition is one which can be met in two ways: (1) by helping the mothers of the city to understand how they may, within their limited incomes, purchase and prepare food for their children, and (2) by the school lunch system.—*Weekly Bulletin*, N. Y. City Health Department, March 9, 1918. (*D. G.*)

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A Four-Day Free Public Health School will be conducted by the Public Health Committee of the Massachusetts Medical Society, May 28–31, 1918. Lectures will be given at Huntington Hall and at the new Technology buildings by experts from federal, state and local health agencies. An attractive program has been prepared by Mr. C. E. Turner, the agent of the Medical Society.

A similar school held last year attracted a very satisfactory attendance from health officials.

The topics include water and sewage purification, the public health laboratory, specific diseases, public health reports, industrial hygiene, child welfare, and public health administration.

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The Illinois Vigilance Association has issued four pamphlets on the problem of venereal diseases for inexpensive or free distribution, as circumstances may require.

Copies will be sent free of charge to anyone sending a self-addressed and stamped envelope. The Association is a welfare organization incorporated "not for Profit."

The pamphlets are as follows: "Lord Kitchener's Instructions to Soldiers"; "Three Great Army Records"; "For Our Sons," a translation from the French by Prof. Alfred Fournier; "For Our Daughters," a translation from the French by Dr. Charles Burlureaux.

Speakers Wanted.—The Council of National Defense desires to obtain a list of speakers qualified to address civilian audiences upon the subject of "Social Hygiene and the War." Those who wish to volunteer their services are urged to communicate with Dr. Franklin Martin, Member of Advisory Commission, Council of National Defense, Washington, D. C.

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A. M. A. Meets in Chicago.—The American Medical Association will hold its next convention at Chicago, June 10–14, 1918. The following Executive Committee is in charge of local arrangements: Dr. Ludvig Hektoen, Chairman, Dr. Charles J. Whalen, Secretary, Wm. A. Pusey, Treasurer, John V. Fowler, Hugh T. Patrick, Malcolm L. Harris, Frank Billings, James B. Herrick, Chas. E. Humiston.

The Committee emphasizes the value of the five days of clinics which will begin on Thursday of the preceding week and will continue up to Tuesday of the Convention week. These clinics will be conducted by clinicians of prominence.

The General Headquarters will be at the Hotel Sherman.

Readers of this JOURNAL will be especially interested in the Section Meetings for Preventive Medicine and Public Health to be held at the Auditorium Hotel.

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Undue Toxicity in Arsenic Products.—Director G. W. McCoy of the Hygienic Laboratory, U. S. Public Health Service, requests that samples of any lots of arsphenamine and neoarsphenamine which have shown undue toxicity be forwarded to the Hygienic Laboratory for examination.

In sending these samples it should be ascertained that the lot number is the same as that of the ampoules used on patients. The samples sent should, if possible, be accompanied by a brief note stating the approximate body weight and age of the patient, the dose and dilution of the drug given, the symptoms and result; that is, whether fatal or not.

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Public Health Courses at Harvard-Technology.—A special course for inspectors of the Boston Health Department was begun on April 22, under the joint auspices of the Lowell Institute and the Harvard-Technology Public Health School, at Cambridge, Mass.

The course covers six weeks of lectures by Professors Sedgwick, Rosenau, Whipple, Mr. C. E. Turner, and others.

During the past five years the Harvard-Technology School of Public Health has had sixty-seven students and has issued thirty Certificates in Public Health. Starting with a membership of only five the first year, it increased to 25 in 1916–1917. Like other schools it has contributed its quota to the national service so that at present its membership is less than a year ago, the number of matriculants being 15.

Some of the graduates of the School of Public Health have found positions as health officials in the federal, state and municipal service; others are in foreign service. The demand for public health workers has become so great and the opportunities for such men in public health work have increased so much as a result of the work that it has been decided to keep the school open during the coming summer.

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Women Bacteriologists Wanted.—There is need for about 100 women bacteriologists to take the place of men in the cantonment laboratories, the Surgeon General's Office of the United States Army announces. The service of the men is demanded for the hospital units which are going abroad and their places at the home cantonments are to be filled by women. Applications are arriving from all camps, some asking for as many as nine women. A good practical knowledge of clinical pathology and diagnostic bacteriology is required for the work. The present salary is $720 with maintenance and $1,200 without, with transportation furnished by the government. Applications may be made to Office of the Surgeon General, Washington, D. C.—*Science*.

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Health Surveys in Oklahoma.—The surveys are in charge of M. P. Horowitz of the Department of Biology and Public Health, Massachusetts Institute of Technology, and Dr. Gayfree Ellison, Professor of Bacteriology and Hygiene of the University of Oklahoma. The investigators are assisted by members of the executive and nursing staff of the State Association, as well as by the staff of the State Board of Health and the Board of Agriculture. The surveys

which began on April 1, will be continued through the month of September. The following towns are included in the series: Oklahoma City, Tulsa, Muskogee, Enid, Shawnee, Bartlesville, Ardmore, Chickasha, and McAlester.

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Anti-Tuberculosis Training for Registered Nurses.—The Missouri Association for the Relief and Control of Tuberculosis gives official expression to the sense that all applicants for the degree of Registered Nurse should be qualified by instruction in the characteristics and prevention of tuberculosis and be systematically trained in the care of tuberculosis cases. This instruction and training, they believe, should be made obligatory and requisite to obtain the degree or to be entitled to officially register as a private or public nurse.

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Seizes So-called Hog-Cholera Remedy.—Seizures of sixty-two cases of a so-called hog-cholera remedy in Iowa and North Carolina upon order of the federal courts mark a determined effort on the part of the United States Department of Agriculture to stop interstate traffic in so-called hog-cholera remedies which do not cure, prevent nor control this disease which has such an important bearing on the nation's pork supply. The seized goods are now in custody of United States marshals pending action under the Food and Drugs Act. The government charges that this remedy will not prevent or cure hog cholera, as claimed on the labels of the seized products.

The Bureau of Animal Industry, through its veterinarians and experts in animal diseases, is coöperating actively with the Bureau of Chemistry in this campaign to control interstate traffic in fraudulent stock remedies.

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Washington Conferences.—The state and territorial health officers will meet in Washington, D. C., June 3 and 4, in response to the call of the Surgeon General, U. S. P. H. S. This meeting will be followed by the Conference of State and Provincial Boards of Health of North America, June 5 and 6.

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Public Health Laboratory Notes.

Abstracts by ARTHUR LEDERER, M. D.

APPARATUS AND TECHNIQUE.

An Improved Automatic Pipette-Washing Device.—Since the publication of an article in the *Jour. Ind. Eng. Chem. 9, 1046 (1917)* the author has designed a modified form of the apparatus referred to, which embodies several improvements. The points in superiority of this device over the one previously described are: (1) greater capacity, (2) smaller table space occupied, (3) lower first cost, (4) cleansing of both outside and inside of pipette. Such an apparatus is particularly useful in serological work.—A. V. Fuller, *Jour. Ind. Eng. Chem. 10, 297 (1918).* (A. L.)

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A New Culture Medium for the Gonococcus.—Agar, containing human plasma, instead of blood, is proposed.—D. Thomson, *Brit. Med. Jour. No. 2948, 869 (1917); Abst. Bact. 1, 511* (1918). (A. L.)

A Procedure for the Demonstration and the Rapid Determination of the Diphtheria Bacillus in Patients and Carriers.—In an attempt to overcome the difficulties offered by similarity in morphology of the pseudodiphtheria bacillus a special differential medium is suggested. It is based upon the idea that the true diphtheria bacillus ferments dextrose while the diphtheroids do not. The medium sterilized at between 75 and 80 C. has the following composition:

Horse serum	100 cc.
Sol. of dextrose, 30 per cent, sterilized	10 cc.
Sol. of sulfuric acid, 1 per cent sterilized	3 cc.
Conc. litmus sol., sterilized	30 drops

—S. Costa, J. Troisier and J. Dauvergne, *Compt. rend. Soc. de biol., Par., 80, 678 (1917); Abst. Bact. 1, 511 (1918).* (A. L.)

A New Wassermann Water Bath.—Such an instrument is offered by E. Leitz Inc., New York City, under the trade name "ELEI" Wassermann Water Bath. It combines an extremely compact size with a capacity (144 tubes) large enough for the routine laboratory, while those baths usually offered are considerably smaller in their capacity. The bath is offered for gas, oil and electric heating.

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Two Procedures for the Rapid Demonstration of Crescents in the Blood of Patients Suspected of Malaria.—Both methods are based upon the property of alcohol of dissolving the red corpuscles and at the same time fixing the film to the slide. The first method will be used if a centrifuge is available. Hemolyze the blood in 33 per cent alcohol, letting the blood run directly into the alcohol in the proportion of 2 drops to each cc. Centrifuge, wash the sediment again and stain it with ammoniated polychrome blue or alkalin methylen blue. If a centrifuge is not available deposit a large drop of blood at one end of the slide and streak the blood along the whole length of the slide. Allow this to dry in the air, wash out the hemoglobin with 33 per cent alcohol, fix with stronger alcohol and stain as above.—L. Tribondeau and J. Dubreuil, *Compt. rend. Soc. de biol., Par., 80, 494 (1917); Abst. Bact. 1, 513 (1918).* (*A. L.*)

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A Simple Device for the Growth of Anaerobes on Plates.—An arrangement is described whereby a false bottom can be placed in a Petri dish, under which a deoxidizing agent, such as pyrogallic acid, can be used.—H. Henry, *Brit. Med. Jour. No. 2945, 762 (1917); Abst. Bact. 1, 514 (1918).* (*A. L.*)

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Shipping Water Samples.—Description of a double walled insulated galvanized iron box for shipping water samples.—Mayo Tolman, *Munic. Jour. Balt., 43, 29 (1917).* (*A. L.*)

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A New Apparatus for Aseptic Ultrafiltration.—A convenient form of filter apparatus by means of which an aseptically filtered juice may be obtained, is figured and described.—R. E. Smith, *Phytopathology, 7, 290 (1917); Physiol. Abst. 2, 541; Chem. Abst. 12, 705 (1918).* (*A. L.*)

BACTERIOLOGY AND PATHOLOGY.

Von Dungern's Indigo Test for Syphilis.—F. found the test originally described by Von Dungern (*Muenchen. med. Wchnschr.* Sept. 1915) particularly unavailable for the serum diagnosis of syphilis, because no difference could be found as to the test between syphilitic and nonsyphilitic sera.—B. Fujimoto, *Jour. Immunol. 3, 11 (1918).* (*A. L.*)

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Preservation of Typhoid Bacilli in Stools.—Benians' experiments support the work of Teague and Clurman, and show that if fecal specimens destined to be examined for the enteric organisms have to submit to delay in transport or for any other reason, it would be well if they were first emulsified in 30 per cent glycerin; a positive result is then much more likely to be obtained. This is especially true in warm weather and in hot countries.—T. H. C. Benians, *Lancet, London, 1, 255 (1918); Jour. A. M. A. 70, 961 (1918).* (*A. L.*)

Survival of Poliomyelitic Virus in Brain.—The experiments recorded by Amoss provide additional reasons for concluding that the streptococcus cultivated from cases of poliomyelitis differs essentially from the filterable virus and is not the microbic cause of epidemic poliomyelitis.—H. L. Amoss, *Jour. Exper. Med. 27 443 (1918); Jour. A. M. A. 70, 1037 (1918).* (*A. L.*)

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Parameningocccci.—Bloch and Hebert relate that in the cases of epidemic meningitis on the eastern firing line parameningococci are often found. They agglutinate specifically and yield only to a bivalent antiserum. Netter's experience (*Bull. de la Soc. Med. des Hop. 41, 1231 (1917)* also emphasizes the efficacy of polyvalent antiserums.—M. Bloch and P. Hebert, *Bull. de la Soc. Med. de Hop. 41, 1229 (1917); Jour. A. M. A. 70, 1040 (1918).* (*A. L.*)

Tuberculin Test Reaction in Typhus.—Mante relates that repeated application of the intradermal tuberculin test to 109 typhus patients showed that a positive reaction during the febrile phase was a favorable sign; all the patients thus responding recovered. The reaction veered to positive during convalescence much more rapidly in the mild than in the graver cases. The curve of the reaction is thus closely connected with the general condition and affords a basis for the prognosis.—D. Mante, *Presse Medicale, 26, 50 (1918)., Jour. A. M. A. 70, 1042 (1918).*

(*A. L.*)

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Prophylactic Value of Agglutination in Cholera.—Negroni's research has confirmed the value of agglutination tests for distinguishing the true cholera germs from those that resemble them. No agglutination was ever noted with the pseudo-cholera germs in dilution beyond 1:500 and very rarely up to this, while with true cholera germs it occurs at 1:10,000 and even at 1:100,000. The agglutination at 1:100,000 is complete in four hours with the living germs, but with germs killed with phenol it occurs in four hours only with dilutions of 1:1,000; seven hours, 1:20,000, and fourteen hours with 1:50,000.—P. Negroni, *Bolletino dell 'Istituto Sieroterapico, 1, 75 (1917); Jour. A. M. A. 70, 1043 (1918).*

(*A. L.*)

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Germ Content of Milk as Influenced by the Factors at the Barn.—This is a continuation of studies on the bacterial contamination of milk, originally started at the New York Agricultural Experiment Station and now being carried on in coöperation by the New York and the Illinois stations. The authors of the present bulletin have made tests of the germ content of the milk produced in three quite dissimilar barns at the Illinois Station where sterile pails were furnished to the milkers and the analyses made from samples taken from the pails immediately after milking was completed. The conclusion reached is that "even under wide extremes in barn conditions it is possible to produce milk with a germ content of less than 10,000 bacteria per cc. when the utensils are properly prepared."—M. J. Prucha and H. M. Weeter, *Univ. Ill. Agric. Exper. Sta. Bull. No. 199, 23 (1917); Abst. Bact. 1, 522 (1918).* (*A. L.*)

Comparison of the Rate of Gas-Production by Certain Bacteria in Raw and Pasteurized Milk.—The author concludes that "pasteurization causes milk to become more favorable to the attack of the gas-forming bacillus and *B. aerogenes.* These results seem to reinforce the impression long held by many milk men that pure raw milk has a power of resisting changes which the same milk does not possess when pasteurized. Between raw and pasteurized milk there may be important differences, although chemical analyses may show no appreciable differences. It should be more generally recognized that pasteurized milk instead of receiving less care than raw milk should receive greater care because of its lessened resistance to many detrimental changes which the appearance of the milk does not indicate. This is especially significant in that, in general, pasteurization has lengthened the period between production and consumption."—Paul W. Allen, *Jour. Inf. Dis. 21, 219 (1917); Abst. Bact. 1, 524 (1918).*

(*A. L.*)

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A Case of Ropy Milk Due to Bacterium Aerogenes.—The milk from the dairy in question appeared perfectly normal when fresh but after ten to twelve hours it became ropy and finally a mucilaginous mass. Bacteriological tests showed that the condition was due to contamination by *B. aerogenes* which gained access to the milk from the water, fodder, etc.—G. Dalla Torre, *Ann. d. r. Stazione Sper. d. Caseificio di Lodi, 1916, p. 23; Abst. Bact. 1, 525 (1918).*

(*A. L.*)

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The Contamination of Milk by Feces: Experiments in Italy.—Comparative experiments showing the total number of bacteria and of coli-aerogenes organisms in the feces of the cow and the pig. The feces of the pig yielded much higher counts. Data are presented showing the rapid growth of the organisms in milk.—G. Dalla Torre, *Ann. d. r. Stazione Sper. di Caseificio di Lodi, 1916, p. 15; Abst. Bact. 1, 526 (1918).* (*A. L.*)

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A New "Specific" for Malaria.—A number of remarkable cures reported from the use of a remedy invented by the author sixteen years ago. The mixture consisted at first of the raw

juice of a certain species of lemon, a quantity of crude biborate of sodium, and the sulphate, phosphate, and chloride of calcium. The later addition of iron and antimony (vinum) gave still more staisfactory results. The new mixture was used in every type of malaria; in hyperpyrexia it was found to act as a diaphoretic and quickly broke the temperature permanently even in those cases that had no splenic enlargement.—H. Willis, *Indian M. Gaz., Clacutta. 52, 230 (1917); Abst. Bact. 1, 537 (1918).*

(A. L.)

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The Disinfection of Drinking Water.—A disinfectant in tablet form consisting of p-sulphondichloraminobenzoic acid with sodium carbonate has been found highly efficient for the sterilization of contaminated drinking water. Directions for the preparation of the germicide and of the tablets are given. Tablets, one of which is suitable for the sterilization of a quart of reasonably heavy contaminated water may be prepared at the rate of about 200 for one cent. The tablets dissolve in about ten minutes. Action is completed in from fifteen to thirty minutes. A convenient working name of Halazone has been applied to these tablets.—H. D. Dakin and E. K. Dunham, *Brit. Med. Jour. No. 2943, 682 (1917); Abst. Bact. 1, 540 (1918).*

(A. L.)

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A Simple Means of Ascertaining if a Sterilizing Hut is Hot Enough to Destroy Lice and Nits in Clothing or Blankets.—Wax of a suitable melting point in dishes of definite surface area is used.—A. Bacot, *Brit. Med. Jour. No. 2953, 151 (1917); Abst. Bact. 1, 544 (1918).* *(A. L.)*

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Colorimetric Determination of Reaction of Bactericlogic Mediums and Other Fluids.—The method described has been devised to accomplish a fairly accurate determination of hydrogen ion concentration without the necessity of preparing standard solutions or of depending on those prepared by others. The authors are concerned only with reactions lying between 7.0 and 8.0, and only phenolsulphonephthalein has been used as an indicator. Other indicators and other ranges of acidity will be investigated later.—G. D. Barnett and H. S. Chapman, *Jour. A. M. A. 70, 1062 (1918).* *(A. L.)*

Bacteriology of Ozena.—A summary of the authors' study of 100 cases shows that the group of organisms known as the *B. mucosus-capsulatus* (Friedländer's bacillus, Abel's bacillus) is preponderant and may be pathognomonic in cases of chronic rhinitis. This group is also independent of the action of putrefactive bacteria. In cases in which the symptom of malodor exists, a different class of bacilli known as the Perez group is most abundant and all cases show either one or both of the Perez and proteus groups present as causative factors of this condition. Cases of chronic catarrh may harbor pathogenic organisms of other species such as the diphtheria bacilli and contribute to the distribution of similar infections.—H. C. Ward and D. C. Beaver, *Jour. Lab. Clin. Med. 3, 348 (1918); Jour. A. M. A. 70, 1122 (1918).* *(A. L.)*

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Nature of Rabies Virus.—Remlinger calls attention to the diffusibility of rabies virus as a special property which distinguishes it from protozoa and bacteria, and brings it closer to chemicals. For instance, if tissues containing the bacilli of anthrax, tuberculosis or glanders are immersed in glycerin, they do not diffuse through the glycerin, and the latter can be injected into susceptible animals without inducing infection. But if any tissue from an animal with rabies is placed in glycerin, the glycerin and even scraps of normal tissue that have been immersed in it, likewise, promptly induce rabies in animals inoculated with the glycerin or the scraps of tissue in it. This extreme diffusibility is like that of chemical substances.

The rabies virus differs however from chemical substances in that it passes through the more porous filters but not the others. With a less porous filter, the virus may induce rabies in the animal inoculated, but it is impossible to reproduce the disease from this animal in others. With a still finer filter, the virus induces merely cachexia without actual rabies. Chemical substances in solution, on the other hand, pass through the filters regardless of the porosity. The rabies virus therefore, in regard to the filters, behaves differently from both bacteria and chemicals.

The rabies virus behaves paradoxically also in centrifugation. This has no effect on a chemical solution, but it does have a very slight effect on rabies virus; the virus very slowly leaves the

upper layers of the fluid. In short, the rabies virus, filterable and diffusible, seems to offer a connecting link between the visible microbes, which represent the lower limit of the vegetable kingdom, and the diastases, that is, the colloidal substances which may be regarded as at the highest limit of the inorganic bodies. It is thus a transitional form between the visible microbes and the colloids.—P. Remlinger, *Bull. de l'Académie de Med., Paris, 79, 137 (1918;) Jour. A. M. A. 70, 1123 (1918).* (*A. L.*)

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Action of Cold on Microörganisms.—It is generally accepted that cold inhibits the proliferation of germs but does not destroy them. Ruata's experiences, however, have demonstrated that a long enough exposure to cold will destroy the cultures beyond possibility of recuperation. The temperature was dry cold and kept constantly between—3 C. and—12 C. Thirty cultures of colon bacilli and other germs were placed in the refrigerator and some were withdrawn on successive days and incubated. By the fourth day only from three to forty-nine colonies developed, instead of the thousands of the second day, and no colonies at all developed after the fourth day. Similar results were obtained even with four strains of bacilli and one streptococcus isolated from putrid meat. The conflicting results that have been obtained by others were probably due to the fact that the contact with the cold was not long enough to have its action penetrate through the entire mass. Even one germ still living in the center of the mass would start a culture. But systematic permeation of the entire mass by cold of these degrees will certainly progressively sterilize it in time.—A. Q. Ruata, *Annali d'Igiene, Rome, 28, No. 1 (1918); Jour. A. M. A. 70, 1125 (1918).* (*A. L.*)

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Occupational Diseases and Industrial Hygiene.

Abstracts prepared by Drs. E. R. Hayhurst, R. P. Albaugh and P. M. Holmes.

Health Insurance.—This 75-page quarterly constitutes "a positive statement in answer to opponents" with a supplemental bibliography upon the subject of health insurance for the industrial workers of America. Three official investigating commissions—in California, Massachusetts and New Jersey—have so far reported on the question, and each of them favorably. Five or six additional states are now making similar studies. "Our citizens," declares the New Jersey Commission, "are confronted with an urgent call for the employment of their energies upon the field of battle and in the supporting industries. We are told that the work of at least five persons in the industries is needed to maintain one man in the trenches. Many thousands, unaccustomed to peculiar occupational dangers, are entering industry for the first time. . . . The United States government has wisely provided for its enlisted soldiers and sailors the most liberal systems of disability insurance and family allowances ever offered for such a purpose by any nation. The individual states should be no less considerate of their army of industrial workers." The sickness problem, the possible methods of meeting it, of applying the insurance principle, and the scope, benefits and cost of health insurance are carefully gone into. The weekly average per capita cost is placed at 53 cents, to be divided between employers, workers and the state, as estimated by the California Commission. For this a surprising list of benefits may be provided.—*Review, Amer. Assn. for Labor Legislation, Vol. VII. No. 4.*

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Anthrax.—*Monthly Review, U. S. B. of L. S.*, Dec., 1917, p. 254, abstracts Jackson and Buswell's article on the "Disinfection of Tannery Wastes," in which the authors were requested to investigate the subject of infection of meadows by the waste from a tannery. Investigation showed anthrax at times in the factory effluent. The authors finally perfected an installation for disinfecting the effluent. (See *Jour. Amer. Leather Chem. Assn.*, June, 1917, pp. 229, 253.)

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Dermatitis Due to Moa Wood.—*The Monthly Review, U. S. B. of L. S.*, Dec., 1917, p. 204, abstracts an article from the Berlin *Vorwärts* describing an itching eruption breaking out on the arms and other parts of the body of three

workmen who were working on this Australian wood species which is sometimes used in luxurious passenger steamers. Hospital treatment of the workers required three weeks. A crystalline alkaloid was found to be the real cause of the disease.

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Protection of Health of Munition Workers in Italy.—The Italians appear to have gone minutely into this subject in the three pamphlets which Dr. Hamilton translated. They appear to be possessed by a peculiar fear of hurting the feelings of either the employer or employee in some of their rulings. For instance, the doctor must maintain secrecy as to the industrial sickness he discovers; even in making out his report to the local committee he must only indicate symptoms without stating his diagnosis, although the case may be entirely evident. While he may instruct the worker in prophylaxis against disease, he is forbidden to advise him against entering these dangerous trades. A list of industrial diseases which must be reported is given but the physician may indicate only acute cases of poisoning. There are, however, many excellent provisions such as reducing the number of persons engaged in manual work as much as possible, the providing of work clothes, refectories, printing of instructions, etc. The Italians have also seen the wasteful effects of their hurry earlier in the war and are now increasing their efforts to provide adequate protection to workers.—Alice Hamilton, *Monthly Rev., U. S. B. of L. S.*, Jan., 1918, pp. 184–194.

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"Chronic Lead Poisoning" a Reliable Diagnosis.—It is to be noted that the committee appointed by the Vital Statistics Section of the American Public Health Association recommends that "Chronic Lead Poisoning" be regarded as reliable, without autopsy, if there appears a statement of an occupation in which decedent would be subject to lead poisoning, or if the source of the poisoning is specified and complications accompanying, sufficient to cause death, are described. This is the statement under heading 57 of "General Diseases" in the comments made on the International List of Causes of Death. In a like manner other "Chronic Occupation Poisonings" may be regarded as reliable, without autopsy, in cases where the occupation or source of poison is specified, etc.—The Accuracy of Certified Causes of Death, *U. S. P. H. Reports*, Reprint No. 449, 1917.

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Pleurisy an Occupational Disease of Farm Workers.—Braillon, in *Paris Médicale*, calls attention to the characteristic location of a pleural effusion in the front upper part of the pleura in men who bend over at their work, such as tillers of the soil.—Abstracted by *Jour. A. M. A.*, March 16, 1918, p. 817.

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Tin Poisoning.—A man who had a plate of teeth set in tin or rather Watt's metal, two-thirds tin and one-third bismuth, complained continually and for over a year of a feeling of coldness, indefinite pains in his arms, legs and head and of soreness in his throat. He was put down as a neurasthenic until eventually a blood and urine examination showed tin as did also the stools. The literature shows that in animal experiments tin has a predilection for the nervous system with frequent paralysis of the limbs. Although the plate was discarded, the symptoms persisted and the conclusion is that his nervous system was in some way permanently damaged by the metal. He still complains of his "hots and colds," although he is now able to attend to business.*—Moses Salzer. *Jour. A. M. A.*,

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New York Academy of Medicine Adopts Resolutions on Occupational Diseases.—According to the news columns of the *J. A. M. A.* (April 6, 1918, p. 1018), the New York City Academy of Medicine on March 7, 1918, adopted resolutions urging upon medical schools the necessity of instruction in the treatment and prevention of occupational diseases, particularly with reference to the poisonous substances used in war and other industries. The medical press was also requested to give more space to the subject and the federal government requested to coöperate through its corps of public health service experts.

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*By a goodly number of hygienists the question of any specific toxicity of tin has been much in doubt. The metal is so rarely used by itself that, in industrial workers at least, other metallic poisons, especially lead, are difficult to rule out.—E. R. H.